The United States MILLER

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Origin of the "Baker's Dozen."

Close by Market street (now Broadway) lived and prospered a baker, the first man that ever baked New-Year cakes—in fact, the inventor of them. The name of our friend was Volckert Jan Pietersen Van Amsterdam, commonly known as Baas. He was Dutch from his large feet to his round bald head, and had no respect for any one or anything that was not Dutch. He was a regular attendant at the old Dutch church, but, nevertheless, in constant fear of being bewitched. His wife, Maritje, was economical even to saving the parings of her nails, and his ginger-bread babies were always made in imitation of his children. It was New-Year Eve, 1665, and Baas was in his shop dealing out cakes for small pieces of money, called wampum. He had taken an extra glass of rum in honor of St. Nicholaus, when he heard a sharp rap, and in walked as ugly an old woman as ever he had set his eyes on.

"I want a dozen New-Year cookies," she screamed.

"Vell, den, you needn' speak so loud," replied Baas. "Duyvel! I ain't teaf, den."

"I want a dozen," screamed the old woman, "and here is only twelve."

"Vell, den, und vhat de duyvel is dwalf but a dozen?" said the baker.

"I tell you I want one more!" she shrieked.

"Vell, den," said he "you may co to the duyvel and get anodder; you von't get it here."

From this time on our baker's wife and himself were made miserable. Their money and cookies were taken away by invisible hands; their bread either rose out of their sight or sank into the earth; their famous brick oven was torn down, and poor Baas pelted with his own bricks; Maritje became deaf; Baas was black and blue from head to toe; and such a life as he led was purgatory. Thrice the old woman appeared, and thrice was she sent to "de duyvel." And at last, in his agony, Baas bethought himself of St. Nicholaus, who advised him, on hearing of his troubles, when he counted a dozen to count thirteen.

"Py St. Johannes the Dooper, put St. Nicholaus is a great plockhead!" thought Baas; and while he was thus thinking, St Nick. had vanished, and in his stead was the old woman. She repeated her demand for "one more" and Baas, remembering St. Nicholaus, acceded to her demand, when she exclaimed, "The spell is broken, and henceforward a dozen is thirteen, and thirteen is a dozen." And taking a cookey with an effigy of the good saint on it, she made Baas swear that ever afterward twelve should be thirteen, as a type of the thirteen mighty States that should arise out of the ruins of the government of Vaderlandt.

It is well known how terribly St. Nicholaus revenged himself upon those who set themselves up against the venerable customs of their ancestors, and refused the homage to him to whose good offices it was owing that this his favorite city has surpassed all others in beautiful damsels, valorous young men, mincepies, oliekoeks, and New-Year cookies.—*Harper's Magazine for March.*

A Porky Story.

"On this day seventeen years ago," remarked a New Yorker the other day, "I shipped 1,000 barrels of pork to Washington. I was an army contractor then, and whenever I heard of a barrel of pork I went for it and bought it at some price. I remember this particular shipment because a serious mistake was made."

"How?"

"Well, I counted the barrels at the depot myself, and there were only 990, when there should have been an even thousand. Men were ready to roll the barrels into the freight cars, and to make my number good I took ten barrels of lard from a stock ready to ship to Baltimore. They mixed in all right, and, of course I expected to pay for 'em. A whole day went by before I saw the owner. These were stirring times, you remember. He had found himself short, and he cribbed ten barrels of beef to make good his number of barrels, and hustled the shipment away."

"And who did the beef man crib from?"

"Well, his beef was for the soldiers, and he made himself good by buying three barrels of vinegar, two of crackers, and stealing five barrels of apples from a lot in the depot."

"And did it go any further?"

"Yes. The most curious thing of all was that the man I took the lard from sued the man who stole the apples, and got judgment against him for the worth of the lard, and none of the rest of us were out a cent.

New Method of Constructing Factory Floors.

A curious method of laying floors is used in France when great solidity is needed, and which has obtained a wide application. It consists in putting down a floor, not, as usual, on sleepers, but embedding the boarding in asphalte. Pieces of oak, usually about 2½ to 4 inches broad and 12 to 30 inches long and 1 inch thick, are pressed down into a layer of solid asphalte not quite half an inch thick, in the well-known herring-bone pattern. To insure a complete adhesion of the wood to the asphalte and obtain the smallest possible joint the edges of the pieces of wood are planed down, bevelling toward the bottom, so that their cross-sections become wedge-like. It is stated that these floors are used mainly for ground storeys in barracks and in hospitals, and that they have been laid in numerous newly-constructed forts around Metz. A number of advantages are cited in connection therewith. A plan in some respects resembling this has been employed in the construction of the floors in a new factory recently erected by Messrs. Bliss & Williams, Brooklyn. It is similar, however, only in some of the more general features, the details being altogether different. Sleepers are employed, but instead of stretching between supports they are solidly bedded in concrete. Upon them planking is placed, each plank as laid being bedded in hot tar. One of the most annoying points of many otherwise well-built factories is their poorly-constructed floors. A tight, smooth, strong and durable floor is what is wanted, but in floors as commonly constructed some of these qualities at least are lacking. A floor on which heavy machinery can be placed without regard to the position of beams and girders is a rarity. Floors which have to rest upon the ground, as ordinarily built, are constantly wearing out, and are never to be depended upon. The construction employed in the factory above mentioned combines all the desirable qualities which we have mentioned, and avoids the objectionable features. The business conducted in this factory, which is the manufacture of presses and dies, is such as will test any floor quite severely. Accordingly, whatever construction is satisfactory in this case is very likely to prove desirable in other instances. The following description shows the construction employed. The surface of the ground after the top earth has been removed was thoroughly smoothed and rolled. Four inches of concrete was then applied, and, while this was soft, locust stringers were spaced about 30 inches between centres. After the concrete had become perfectly hard and solid, 2 inch planks of Georgia pine were laid, each plank in turn being bedded in hot tar, which was spread on to the concrete as fast as the planks were laid and spiked. The result is a floor upon which the heaviest machines can stand in any convenient position without the necessity of any special foundations. Moreover, it is waterproof, dampproof, and no miasma can arise from the ground through it. A floor of this kind is both cheap and solid, but an advantage which will appear to every factory owner and builder is that such a floor will last until worn out from the top. There can be no decay from the under side. It is reported that floors constructed upon this general plan have been in use in some of the older factories upwards of twenty-five years. They have not, however, come into general use.

An Emphatic Witness.

Alick Thompson, of Virginia, tells a story illustrative of the peculiar vernacular of the people among whom he was born, and of their special capacity for giving evidence in a court of justice in a compact, accurate and picturesque style. Some time ago he chanced to be visiting at a county seat in Virginia, and was courteously invited by the Commonwealth's attorney to come into the court-room on the following morning, with the assurance that a witness would testify in a murder case then pending. He entered the court-room, and speedily after his arrival a witness was called, who advanced to the stand with such a jaunty air of self-assurance, and who kissed the book with such loud-sounding confidence, that he was sure that this must be "his man." His judgment was not incorrect.

"Mr. Williamson," asked the Commonwealth's attorney, "do you know anything of the killing which took place at Robertson's store last month!"

"*Know* anything!" was the response, "I were *thar*."

"Then tell the Court and jury," said the attorney, "what you know."

The witness planted himself more firmly on both feet, glanced around upon his auditors, and thus delivered himself: "Well, you see, Mr. Robertson was a-sittin' in the back part of his store a-playin' of his fiddle, not a-thinkin' of bein' stobbed, nor nothing of the kind, when in come Mr. Johnson, and then and thar stobbed him; *then he gathered a bung-starter, cleaned out the crowd, tipped the palin', and cl'ared heself.*—EDITOR'S DRAWER, in *Harper's Magazine for March.*

HE GOT HIS WIND SHUT OFF.—A miller of South Lincolnshire, England, writes as follows to an English journal: "I occupy a windmill, and since it has been erected a wealthy gentleman has purchased land and built a residence within a short distance of the mill. He has planted a quantity of trees close to the mill, the consequence is that my wind is blocked nearly all round; indeed, in some directions I can not go at all, which is a serious loss to me. Since a greater part of the trees have been planted after the mill was built, I should like to know if I have any legal redress for my loss." The journal thinks the case too vague to go upon, and knows of nothing absolutely bearing upon the subject.

TO GET RID OF RATS.—Set your trap in your mill and catch one alive. Paint him a bright red color and let him go. Then put your tarp in another place in the mill and catch another and likewise paint him and let him go. your rats will soon disappear from the premises. Try it.

A GENTLEMEN, with an evidently statistical turn of mind, recently calculated that London consumes 450,000 tons of bread annually, and at 7*d*. per quarters, all round, this gives a daily cost of £21,875, or £7,320,000 in the year. Of this immense sum, we are told by the bread reformers, more than one-fifth is absolutely wasted. Out of a quarter of wheat, weighing on the average some 480 pounds, only about 380 pounds of flour is produced; while the remainder, which contains, according to analysis and experts, the more nutritious portions of the wheat, is used chiefly to fodder cattle. When economists tell us that such extravagant waste is being daily perpetrated among us, we must indeed assent to the *dicta* of the "League" that the subject of bread reform deserves serious attention.—*For. Ex.*

About the "Victor" Turbine.

The *European Mail*, of February 2, 1881, contains an article on turbine water wheels, by Bowis Bale, M. E., in which he writes of the "Victor" wheel, manufactured by Messrs. Stilwell & Bierce, of Dayton, Ohio, as follows:

"An American turbine of recent construction, and one that possesses several features of interest, is that known as the "Victor," designed by the Stilwell & Bierce Manufacturing Company, of Dayton, Ohio, and which we illustrate herewith in fig 7.

"This wheel receives the water upon the outside, and discharges it downwards and outwards, the line of discharge occupying the entire diameter of the lower portion of the wheel, excepting only the space filled by the lower end of the shaft.

"The outside case, containing the guide and wheel, is cast in one piece; a flange projecting from the cylinder is placed exactly at right angles to the vertical shaft. The outside case is accurately bored to receive the circular water guide; this is also cast in one piece, and the water-ways are made fixtures, but the whole guide is moved round for the purpose of admitting or shutting off the water by means of a segment and pinion. The movement of this circular guide, or, as it is called in the United States, register gate, regulates the amount of water supplied to the wheel. The inventors of this form of wheel claim for it as a great advantage that the improved guide secures an equal and uniform delivery of water on all parts of the wheel without changing the direction of the current or the relative angle of the stream and the face of the bucket, or in any degree checking the velocity of the water admitted to the wheel. The circular guide or gate is fitted closely to the outside case, so that much water cannot leak between them. The guide is protected from the vertical pressure of the flow of water by a cast iron movable top.

"In a recent trial it is stated that a 15 inch wheel of this type under a 18·34 foot head of water, gave out 20·36 horse power, or about 88 per cent. of useful effect. If this is correct, this wheel must be held to have surpassed most other types now constructed.

Immigration January, 1881.

The Chief of the Bureau of Statistics furnishes the following information in regard to immigration into the United States:

There arrived in the ports of Baltimore, Boston, Detroit, Eastport, New Bedford, New Orleans, New York, Philadelphia, Port Huron and San Francisco, during the month ended Janury 31, 1881, 15,224 passengers, of whom 13,134 were immigrants, 1,554 citizens of the United States returned from abroad, and 536 aliens, not intending to reside in the United States. Of this total number of immigrants there arrived from England and Wales, 1,745; Scotland, 312; Ireland, 737; Germany, 4,338; Austria, 319; Sweden, 271; Norway, 96; Denmark, 56; France, 297; Switzerland, 389; Netherlands, 79; Italy, 1,027; Russia, 126; Poland, 36; Hungary, 512; Dominion of Canada, 2,027; China, 547; Australia, 113; and from all other countries, 201.

The number of immigrants arrived at the above-named ports during the seven months ended January 31, 1881, was as follows: From Germany, 77,407; Dominion of Canada, 74,-839; England and Wales, 34,299; Ireland, 29,-265; Scotland, 7,586; China, 3,213; all other countries, 63,345.

The heaviest rains ever known visited California during the early part of February. The damage done to property was very extensive. Many mill-dams were carried away and mills and other buildings damaged. The quantity of rainfall is deemed sufficient to ensure a good crop however, if there should be little or no more rain before harvest time.

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MILWAUKEE, MARCH, 1881.

We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

MILLERS' DIRECTORY.

All mill-furnishers, flour brokers or other parties desiring to reach the flour mill owners and millwrights of the United States and Canada, should have a copy of the above named work. It contains about 15,600 names with Post-office addresses, and in many cases (notably in Wisconsin and Minnesota) gives the number of runs of stone, sets of rollers, and kind of power used, or the capacity in barrels. A limited number of copies only have been printed. Upwards of 100 of the leading mill-furnishing houses and flour brokers in this country and several in Europe have already secured copies. Send in your orders at once. Price Five Dollars, on receipt of which Directory will be forwarded post-paid by mail. Address,

UNITED STATES MILLER,
MILWAUKEE, WIS.

☞ The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

WE are informed that suit has been brought against Huntley, Holcombe & Heine, manufacturers of middlings purifiers at Silver Creek, N. Y., by the Consolidated Middlings Purifier Co., of Jackson, Mich., for infringement of purifier patents.

THE *Austro-Hungarian Miller* makes light of Consul General Stern's recent consular report of the competition of American flour against Hungarian flour.

THE advertisement of W. E. Catlin & Co. on another page speaks for itself. We recommend all in need of goods in his line to write to him. His prices and goods will please all.

O'CONNELL & MAHONEY, mill pick manufacturers of Chicago, Ill., solicit the patronage of all millers desirous of using good mill picks. Read their advertisement on front page.

MILLERS will do well to read the new advertisement of John Gorrie, manufacturer of mill picks, Chicago, Ill. Mr. Gorrie is a skillful worker of many years experience, and solicits a share of the trade.

A GROCER who would buy a bogus article of butter and sell it for "good butter," knowing the fraud, would become a dealer in counterfeit money, or engage in any other money-making swindle, however mean or rascally, if he had a good chance. Such a man is naturally a villain, and ought to be handled without gloves.—*Chicago Journal.*

You are right Bro. Journal. Give it to him. Tell his name. We'll wager that it was the same chap that got some of his "bull butter" on our plate too

A Supply of Seed Wheat.

We are happy to note that the firm of E. P. Bacon & Co., of Milwaukee, have taken the matter of furnishing first class Scotch Fife (Fyfe ?) seed wheat to the farmers of the North West. At a large expense they have sent a skilled buyer to the farmers granaries of the Red River Valley of the North and have purchased a considerable quantity of the best seed wheat to be had. They have had it carefully cleaned and separated from cockle and other weed seeds, and will furnish it to farmers and to millers for the purpose of distribution to farmers at a reasonable price. The importance of good seed wheat cannot be overestimated. The prosperity of our milling interests and of our flour export trade depends upon the plentitude of good hard wheat. Full information in regard to this matter can be had by addressing the firm as above mentioned.

The First Steel Boat Ever Built.

We were recently favored, by the inventor and builder, James Rees, Esq., of Pittsburg, Pa., with a photagraph of the steamer *Francisca Montoya*, the first steel boat ever built in any country. In the accompanying letter, Mr. Rees says: "I contracted to build this boat complete, put her up in South America, make a trial trip, and guaranteed her to make twelve miles per hour up stream, and to carry 75 tons of freight on 24 inches of water. The contract was fullfilled to the letter, and to the satisfaction of her owners, the Magdalena River Navigation Company. The boat is 150 feet long, 29½ feet beam and 4½ feet hold, with ten water-tight compartments in the hull. Engines have 15 inches diameter of cylinder, 5 feet stroke, poppet valves, with Rees' patent adjustable cut-off and steel shaft. It has two boilers 16 feet long and 46 inches in diameter, with forty-one 3-inch tubes in same. The full length cabin and texas for crew and officers are handsomely finished and complete in every detail as on the best Western and Southern river boats." Mr. Rees is now building a steel boat for the same company, 130 feet long by 24 feet beam, to draw only six inches of water light when completed, and is also now building a double hull steel boat for the Saratoga Lake Railroad, of New York. This business seems capable of unlimited extension, and Pittsburg is ready to furnish boats for the rivers of all countries at short notice.

The Flouring Industry in Milwaukee for 1880.

We publish herewith the capacity and amount of production in barrels of 196 pounds for the year 1880 of the flouring mills of Milwaukee. It is only fair to state that none of the mills run anywhere near all the time and some not mentioned here did not run at all. Much of the year was taken up in planning for and making changes and additions, the result of which will be seen at the end of the present year. The changes and new additions which will probably be complete by May 1st, will increase the daily capacity of Milwaukee mills to about 9000 barrels per day, or 2,808,000 barrels per year of 312 working days.

Name of Mill.	Name of Owner.	Capacity in bbls of 196 pounds per 24 hours.	No. bbls manufactured in the year 1880.
Eagle Mills	J. B. A. Kern	1,000	202,341
Star Flour Mills	H Nunnemacher Co	600	142,000
Milwaukee Mill. Co.	Milwaukee Mill. Co.	450	75,000
Phoenix Mills	E. Sanderson & Co.	500	55,000
Centennial Mills	Wm. Gerlach & Co.	180	45,000
New Era Mills	B. Stern	600	30,000
Empire Mills	S. H. Seaman & Co.	400	26,363
City Mills	W. C. Durant	300	20,000
Ontario Mills	C. Manegold & Son	200	20,000
Reliance Mills	C. Manegold & Son	400	19,000
Cream City Mills	Mat. Keenan	150	20,000
Milwaukee Mills	Guettler & Co	75	8,000
Bertschey Mills	Gem Milling Co	250	1,700
Total		5,105	624,409

Personal.

Mr. O. E. Meyer, of Hartland, Wis., favored us with a call Feb. 28th.

M. J. J. Doughty, of the firm of Doughty & Selover, millers of Lake City, Minn., recently favored us with a call while on his way to Ohio.

H. A. Bateman, of Ripon, Wis., the inventor of a Waterpower Regulator, called on us recently while in Milwaukee attending a Masonic gathering.

H. W. Caldwell, the well known inventor of iron-conveyors, has moved from St. Louis to Chicago, where his friends can find him at No. 46 S. Canal street.

M. Deal Esq., of Bucyrus, O., the manufacturer of grain cleaning machinery has been seriously ill for several weeks but is now reported as in a convalescent state.

Mr. Wm. Lehmann of this city, favored us with a call Feb. 21. Mr. Lehmann has been absent traveling through in Illinois and Missouri, introducing his patent staff and method of truing the face of millstones.

Mr. J. M. Stowell, of the firm of Filer, Stowell & Co., proprietors of the Cream City Iron Works of Milwaukee, has been confined to his house by ill health for several weeks but we are glad to announce that he is now improving rapidly and will no doubt soon be found in his office as usual.

We regret to announce the death, January 26, of Mrs. AGNES MATILDA SMITH, wife of Hon. H. B. Smith, Member of Congress from Smithville, New Jersey, and editress of *The Mechanic* of that place, a handsome Journal which has been a welcome visitor to our sanctum for years past.

Milwaukee Items.

Church & Patterson, of Sterling, Ill., have contracted with E. P. Allis & Co. to change their mill to a 250 barrel roller mill.

Gibson & Co., of Indianapolis, are putting in the Gray rolls.

Millwrights are busy at work with Jas. K. Hurin's mill at Cincinnati; Commins & Allen's mill at Akron; Jones & Company, of New York city, and A. W. Ogilvie, Montreal, Canada, changing to the roller system. The rolls for these mills are all of the Gray pattern, and the entire machinery and work is done by E. P. Allis & Co. These mills will be of the following capacity respectiyely: 200 barrels, 550 barrels, 700 barrels, 500 barrels.

Pat Gillen, who has been superintending the changing of the Sanderson mill at this place, for E. P. Allis & Co., where he has put in 65 set of the Gray rolls, left Milwaukee for Glasgow, Scotland, to superintend the changing of John Glen's mill at that place. The mill is being furnished by E. P. Allis & Co., and contains 50 set of Gray rolls.

J. B. A. Kern is about ready to start his new 1,200-barrel mill. It contains 60 set of the Gray rolls.

The order for 101 set of the Gray rolls, which are being furnished by E. P. Allis & Co., for C. A. Pillsbury & Co.'s new 4,000-barrel mill, in Minneapolis, are about all shipped. This was the largest sale of rolls yet heard of, and in the mill nothing but the Gray rolls are to be used.

Louis Funk, representing the firm of L. & H. Huning, Los Lunas, New Mexico, after spending a month in carefully examining the different systems of milling, came to the Cream City and contracted for the entire machinery and rolls for changing their mill to a 300-barrel roller mill. This firm's reputation extends far and wide.

Forty of the Gray rolls have recently been shipped to Washburn A Mill, in Minneapolis. This increases the capacity of this mill to 3,000 barrels. By the way, all the old gear machines in this mill has been changed to the belt movement.

The Daisy Model Mill, in Milwaukkee, is fast reaching completion, and will be started in the course of a month or two. This mill contains one of the Reynold's-Corliss engines and 30 of the Gray roller machines. When this mill starts millers are cordially invited to come to the Cream City and examine it.

Jones & Co.'s mill, in New York, will contain 50 of the Gray rolls. All the changes in this mill are being done by E. P. Allis & Co.

Becker & Underwood's mill at Dixon, Ill., has just started up with 40 of the Allis rolls.

New Publications.

Harper's Magazine for March contains the following interesting articles: "Bedford Park," by Moncure D. Conway; with eight illustrations. "The University of Leiden," by W. D. Hewett; with ten illustrations. "The Arran Islands," by J. L. Cloud; with ten illustrations. "Possibilities of Horticulture," by S. B. Parsons; with nine illustrations. "A Glimpse of an Old Dutch Town," with sixteen illustrations. "Richard Henry Stoddard," a poem; by Henry Ripley Dorr. "The Gravedigger," by Robert Herrick; with full-page illustration by Abbey. "A Nation in a Nutshell," by Geo. P. Lathrop; with twelve illustrations. "Anne," a novel; by Constance Fenimore Woolson; with three illustrations by Reinhart. "The French Republic," by George Merrill. "Hands Off," a story. "A Talk on Dress," by Maria R. Oakey. "A Helpmeet for Him," a story; by W. M. Baker. "The Family Life of the Turks," by Henry O. Dwight. "A Laodicean," a novel; by Thomas Hardy; with an illustration by Du Maurier.

Harper's Magazine for March is a delightful Number. There is not a dull article in it; and the illustrations are not only beautiful as works of art, but full of interest and meaning. A striking feature of the Number is its variety.

Scribner's Monthly for March is a very interesting number, and will meet with favor from the most critical readers. The novel entitled "A Fair Barbarian," by Mrs. Burnett, is exciting considerable interest in literary circles, and its continuation in *Scribner* is anxiously looked for.

Foreign News Items.

A Chamber of Commerce is to be established in London, Eng.

THOS. CARLYLE, the great Scottish author, died Feb. 5, 1881, aged 86.

THERE are nearly 8000 flouring mills in the United Kingdom of Great Britain.

THERE has been a considerable increase of exports to Southern Africa during the past few months.

MUTUAL insurance forms a ready subject for discussion at the meetings of Millers Associations in Europe as well as in America.

VERY severe weather has visited all sections of Europe as well as America. The year 1881 will "take the cake" so far as weather is concerned.

THE N.-Sa'roser Mill in Eperies, Austria, during the year 1880 ground 396,000 bushels of wheat and 45,285 bushels of other kinds of grain.

THE slight ripple of interest gotten up in Great Britain recently by the Bread Reform League is, we should judge by the papers, dying a natural death.

THE Szathmarer Steam Mill Co. have given a report of their business for the year 1880. The mill run 287 days of 12 hours and ground 211,000 bushels of wheat. The net profits were $12,102.

JOHN THURLEW, aged 32, a discharged employee who recently shot and badly wounded his employer, R. H. Appleton, a millowner at Thornaby, England, has been sentenced to 15 years penal servitude.

THE total traffic of the Suez Canal during 1880 amounted to 2,026 ships of 4,849,548 tons, producing a revenue of $7,950,000, thus enormously surpassing the traffic of any year since the opening of the Canal 10 years ago.

THE report that the Russian Government had prohibited the export of corn seems to have been premature. The crops are short in Northern Russia and the deficit can be supplied there at satisfactory prices by imports from America.

THERE was a great falling off in exports of wheat and rye from the ports of Odessa and Nicolaieff, Russia, as is shown by the following figures: Exports of wheat for 1880, 1,851,948 quarters, of rye, 491,941 qrs. The exports for 1879 were of wheat 4,614,293 quarters, and of rye, 1,510,872 qrs. The large stocks of grain now in Russia are held by wealthy operators for a grand raise in prices.

THE Hoffmann Starch Manufactory in Salzufien was recently badly damaged by fire. The establishment employed 1000 persons, and made 5000 cwt. of rice weekly into starch. About 80,000 cwt. of manufactured starch was also burned. The cause of the fire is unknown. It started in the pasting department, where there was a great quantity of combustible material. The damage is estimated at $300,000. The loss is fully covered by insurance.

THE fameus mills of Budapest, Hungary, have not been able to declare the usual fat dividends for the year 1880, but some of them do better than was anticipated. The First Ofen Pest Roller Mill Co. declared a dividend of 5 per cent, the Pannonia mills 7½ and the Victoria mills 15½ per cent. The celebrated Louise mills, which declared a dividend of 40 per cent in 1879, failed to be able to make any dividend at all for 1880. Business is reported dull, but slightly improving.

THE rapid increase of American imports of flour to both Great Britain and France is just now strongly agitating the spirits of the French millers. French journals state that their flour export trade is already lost and that the prosperity of their millers is greatly endangered, and demand that the import tariff of 25 cents per cental on American flour must be increased as a means of protection for their milling industries. They will find, however, that a tax on breadstuffs will not be submitted to by their millions of bread consumers.

LATEST advices from the Argentine Republic, South America, indicates that the crop just harvested is considerably larger than at first anticipated. Brazil will consume most of the surplus.

The Duplex Safety Boiler.

The increasing frequency of fatal and disastrous boiler explosions seem to us to demand more attention than it has been receiving from the press of the country. Since the commencement of the present year there has been in the United States alone, an average of nearly two boiler explosions daily, which have resulted in the loss of over one hundred lives from stationary boilers alone. Our investigation of this subject leads us to the conclusion that there is a wanton sacrifice of human life urgently demanding legislative interference. There are several makes of non-explosive boilers in the market, from among which we have selected the Duplex Safety Boiler as presenting to our mind, probably, most merit in the important features of durability and economy, with the least labor in keeping them clean and in effective working condition.

This boiler was introduced about a year ago, and has met with a large sale among leading manufacturers in the Eastern States. We regard it as worthy the careful investigation of engineers and all others who are in any way concerned in the use of steam.

Of its safety there can be no reasonable question, and a considerable economy over the ordinary boilers in use is guaranteed by the responsible company who manufacture them. Its construction is shown by the illustrations we publish and explanations below:

A, represents the steam drum, 30 inches in diameter, double riveted. BB represent cast malleable iron or steel spherical shaped sections or connecting spheres, which are attached to each other by the wrought iron boiler tubes that are regularly expanded and caulked in the usual way. The neck pipes C are attached by means of riveted joints to the bottom of the steam drum. DD, bars of wrought iron set in the side walls, upon which the boiler is suspended. Within each of the larger or 4 inch tubes are placed others of 3 inches, expanded also; the 4 inch tubes are attached to the inside of the spheres, which the smaller tubes pass through and to the opposite sides—the water space being between them—the heat passing inside the smaller and outside the larger, shown by F. In the centre of these tubes in each section is a larger one of 7 inches in diameter of solid water, G, without any inside tube, the water ascending in the smaller tubes and descending in the larger one, insuring the best attainable circulation. H, the water line. MM represent side doors in the walls for cleaning and inspection. The bottom of each section has its separate connection with the feed pipe, which is shown by the dotted line P. Any of the sections may be removed for repairs without interfering with the others, or preventing the use of the boiler. The hot air and gases rise from the fire between the wall J, and bridge wall K, and coming in contact with the steam drum pass along through the opening T into the combustion chamber between the walls K and L, where, in their downward course, the gases and smoke are claimed to be nearly, if not perfectly, consumed. The passage N leads to the chimney.

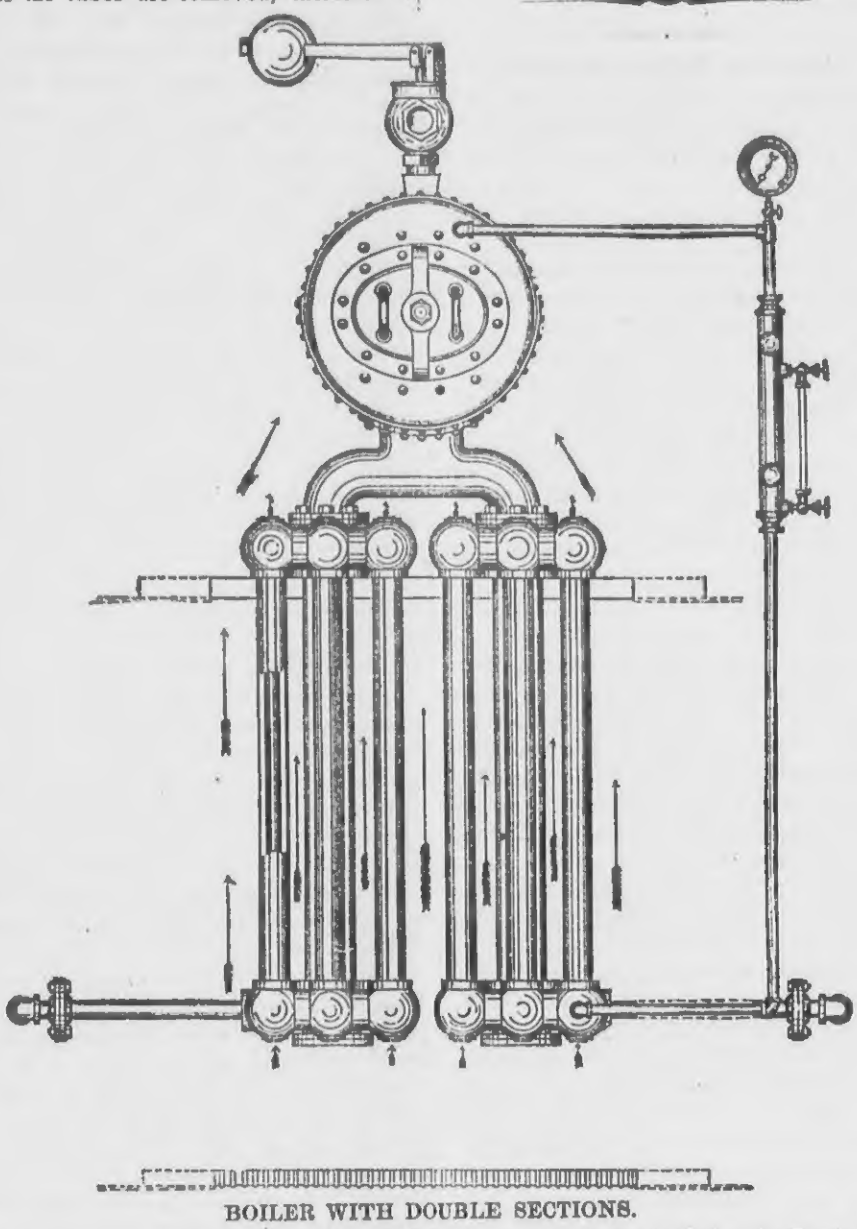
We have evidence where these boilers have been run completely dry, and cold water then put in, and no explosions occurred.

It is beyond dispute that this pattern is made in the strongest possible manner, and the leaking caused by the unequal expansion of the different parts (as in other boilers) is entirely overcome, as all the parts are equally subjected to the heat. The design is plain, and easily understood.

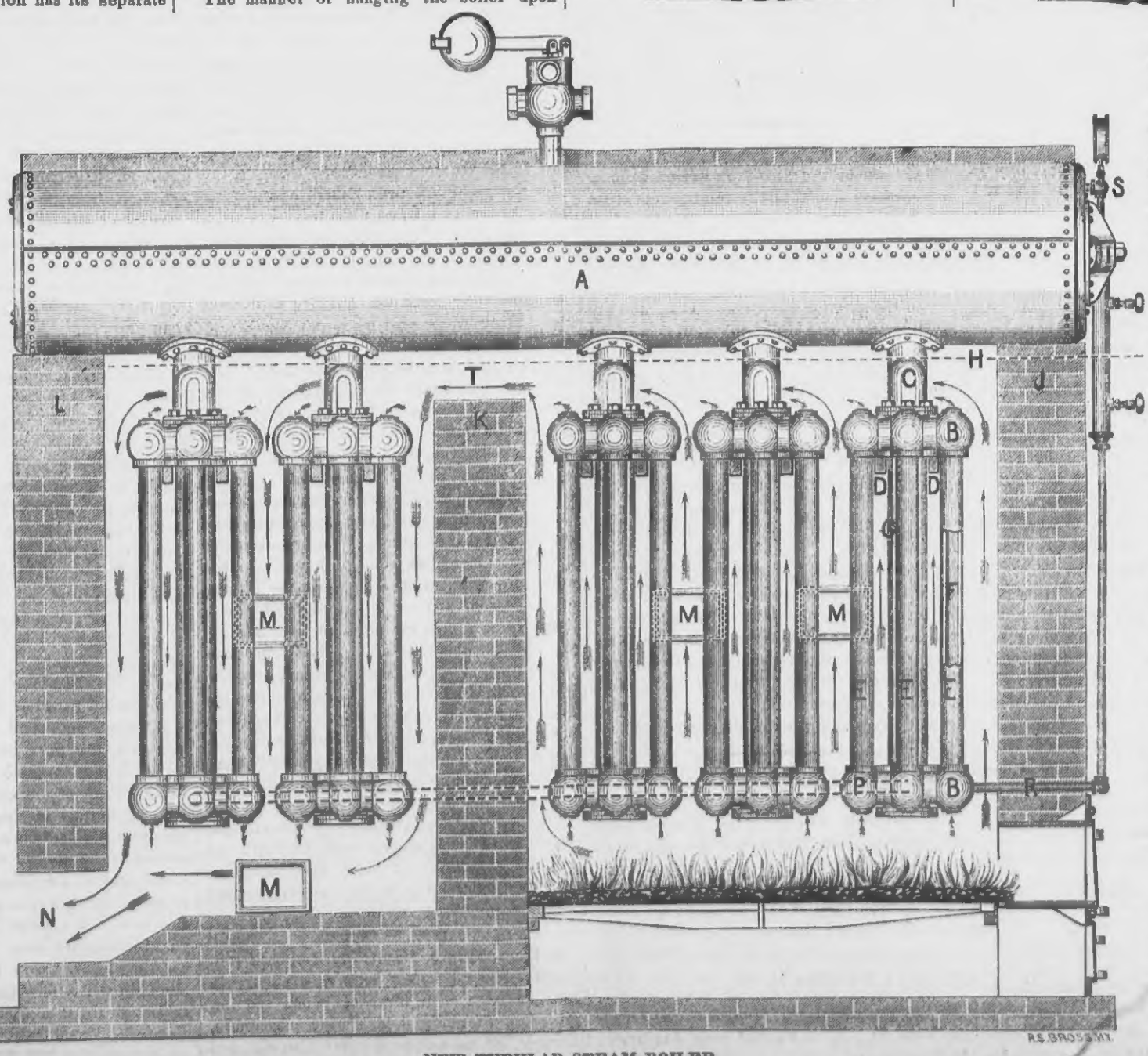
It is also very compact, occupying but little floor space, and can be easily taken apart by any one that can use a monkey wrench, and packed for transportation, as two sections can be carried on the back of a mule, which is very desirable in mining countries; and when ready to set up nothing is required in the shape of tools except a monkey wrench, as none of the tubes are removed, therefore a large amount of time and skill are dispensed with. No deposit of dirt can take place in the tubes to stop them, as they are all vertical. The boilers which we have seen give evidence of care in the manufacture, and the drums or any of the parts can be made of steel when required.

The manner of hanging the boiler upon square bars effectually overcomes the danger of any strains to any part, from unequal expansion.

Further information and particulars, as to cost, can be obtained by addressing the Duplex Safety Boiler Co., 34 Courtland St., New York; or 52 South Canal St., Chicago.



BOILER WITH DOUBLE SECTIONS.



NEW TUBULAR STEAM BOILER.

Minneapolis Items.

A. H. KIRK has invented a new attachment for keeping the cloth in middlings purifiers clean. It has been in operation several months and is said to do well.

THE Cataract Mill has been thoroughly refitted and has just started up.

THE Stevens rolls are being set up in the North Star mills.

DURING the early part of February the low water in the canal was the cause of much inconvenience.

DAVID WILLIAMS, a millwright, fell from a staging in the Pillsbury A mill and striking some timber broke his nose and kneecap.

THE receipts of wheat at Minneapolis for the month of January were 1,124,100 bushels.

MESSRS. Lockwood, Upton & Co., of the Union Iron Works, will greatly enlarge their plant early in the Spring.

THE Minneapolis Millers Association has recently issued a circular of which the following is a copy: "We have learned that there is a large amount of unmerchantable wheat in the country, viz: Bin-burnt, stack-burnt, wet, musty and generally unsound. Several cars have already been received here containing more or less of the worthless stuff. It ought not to be taken into an elevator with any idea of mixing it with better wheat, as a very slight mixture seriously injures the good, and any considerable amount makes the whole entirely unfit for milling. Unless great caution is used in taking in wheat the trouble is likely to largely increase on account of the large amount still in stack, which is being threshed in a wet and frozen condition; and which is and will be offered for market. Such wheat, if taken, ought to be kept by itself, and shipped and sold on its merits. We experimented thoroughly with such wheat last year and the result was many thousands of dollars loss, a slight mixture of the burnt or damaged wheat rendering the flour unsound and unsalable at anything like full prices. We therefore notify all shippers that such wheat as is described above will be *rejected*, and good wheat, when mixed to any extent with such burnt, musty or damaged wheat will be treated in the same manner."

DIED—Feb. 10th, J. Washburn, from injuries recently received in the Pillsbury A mill. Mr. Washburn leaves a wife and four children.

THE Vienna Roller Mill which was destroyed by fire Nov. 15, 1880, was insured for $306,500.

BARGES are being loaded at St. Louis elevators with wheat and corn for shipment down the river to New Orleans and thence by steamer to Europe. 400,000 bushels were sent out the last week in February and arrangements are being perfected to keep up the river trade.

THE city of Galveston, Tex., as is well known, is situated on an island several miles from the main land; and it has been a perplexing problem there for many years how to obtain a supply of fresh water. Several attempts have been made from time to time to accomplish this result, but none have been successful. A plan is now being carried into effect which it is thought will undoubtedly secure the end desired. The city council have concluded a contract with a party at Oil City, Pa., for boring an artesian well, which it is proposed to carry to a depth of 2,500 feet if necessary, although the opinion is that satisfactory water will be reached at a less depth. Should this venture prove successful a sufficient number of similar wells will be sunk there, thus insuring a supply for public and private use and fire protection.

FAILED. — Samuel Hazelhurst & Sons, of Baltimore, operators in flour and grain, suspended payments Feb. 5th. The liabilities are placed at $40,000 and are mostly to local parties.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

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MILWAUKEE, MARCH, 1881.

THE Vienna *Technologist* says that the proposed plans for the execution of criminals by electricity is enthusiastically advocated by many European scientists.

THE great State of Illinois may well be proud of its financial exhibit. The entire debt of the State has been paid, and there are now over $2,000,000 in the treasury.

GERMAN and French engineers are still trying to utilize the sun for industrial purposes. The Vienna *Technological Journal* believes that the present century will see this problem satisfactorily solved.

PARTIES desiring to buy or sell a mill, or get a situation in a mill, or in want of a miller or journeyman millwright, should make their wants known through the columns of the UNITED STATES MILLER.

IN several State Legislatures, bills have been introduced to regulate the grading and traffic in grain. The more Legislatures let this thing alone the better for everybody. The trade regulates itself very well.

J. A. FRIED, of Frankfort a M., Germany, has recently patented an invention for shutting off water from waterworks before it becomes cold enough to freeze, and turning it on again when the temperature moderates, by means of a current of electricity.

THE exports of merchandise for the month of December 1880 were of the value of $98,856,623 being larger than during any previous month in the history of this country. The imports of foreign merchandise in December 1880 were of the value of $47,372,788.

THE *Farmer* (London) advises the thousands of pretty bar-maids in London to emigrate to America and there become wives and mothers of respectable families. Allright—send along your pretty barmaids, Brother Farmer, and we'll set up the beer and things for 'em.

THE import tariff on all foreign pig iron is $7.00 per ton. It is said that at a recent meeting of Manchester, England, manufacturers, a speaker made the remark that if that tariff was abolished they would be able to close every iron work east of Pittsburgh inside of three months.

The various Boards of Trade have recently subscribed to the fund for establishing a telegraph line from Chicago to New York for their use. There is one already between Milwaukee and Chicago. The capital is to be one million dollars all of which, it is said, has been subscribed. The estimated cost of the line is $450,000. A message of ten words will be sent from Milwaukee or Chicago to New York for 20 cents. The present tariff is 50 cents.

A STORM of almost unprecedented fury prevailed throughout the United States on the 11th and 12th of February. The snow fell and drifted in tremendous quantities throughout the northern portion of the country, while in the middle, southern and western portions the rain fell in torrents. The damage to property has been immense. Railroad communication has been greatly obstructed and the general business of the country seriously interfered with for the time being.

MILLING IN GLASGOW, SCOTLAND.—A letter just received by us from a well known milling engineer in Glasgow, Scotland, in speaking of the condition of the trade there says:

"The mills here are by no means as busy as they used to be before the heavy imports of American and Hungarian flour commenced. Many of our mill masters are always persisting in the vain attempt to equal them (Americans and Hungarians) for quality and are eternally making changes in their machinery but they generally find when they do make the quality equal, that it will not pay with the average wheat they can get, but nothing less than the loss of their fortunes will convince some of them that the Northwestern States of America and Hungary have advantages which make their struggle a hopeless one at least for the present.

American Shipping Interests.

Now that the Presidential election is entirely and completely over, and no doubt about it, and the President-elect is about to be installed, it appears to us as if Congress might take time and devise means to promote the growth and welfare of our shipping interests. Our agricultural, manufacturing and railroad interests are all prespering, but when we get our produce to our seaboards we find that we have got to pay *one hundred millions of dollars per year* to foreign vessels to carry it across the seas to those countries that constitute our market for our surplus productions. Our people do not seem to realize the importance of this foreign carrying trade, and the rapid decrease of the use of American ships for carrying goods abroad. In the year 1860 American ships did 75 per cent of this trade, which has decreased in 1880 to a bare 17 per cent. In 1855, 381 vessels were built in the United States for carrying on trade with foreign countries. In 1879 we built but 37, and it is said that there is now not a single American iron ship for trade purposes. In the year 1879, from the port of New York, out of 2,987 vessels, 1,075 of which were steamers, carrying abroad 102,312,568 bushels of grain, there were but 74 American sailing vessels, and no steamers. In view of the foregoing statement, which is undoubted truth, we must concede that there is something wrong, and we naturally look to Congress to right it. Our national navy has for a long time been considered in the light of a national joke on account of the great disparity between it and the navies of other great nations, and our people generally have felt as if we did not care much for a navy anyhow, as we had got something better and more profitable to be doing than to be picking quarrels with our neighbors, and that if we did get into a tangle with some other nation that was necessary to be straightened out by fighting, that we could soon rig up an *impromptu* navy that would answer every purpose, but these are days of facts, and ironclads and steel ships, and, in the language of the Dutchman, when he commenced sliding down the incline of an icy roof, we had "petter look a leedle oud pefore ve strikes somedings." Our navy and commercial marine are subjects, at present, pregnant with interest to our country, and our law-makers should give them prompt and careful attention.

The New York Canals.

Mr. Seymour, the New York State Engineer and Surveyor, has just given his annual report which shows a condition of great prosperity for the canals in New York. British interests, however, have prompted the expenditure of many millions to secure a water way to the ports on our Great Lakes notably to Milwaukee and Chicago, and it will not be any great surprise if British ships of 2,000 tons burden should be seen loading and unloading at the wharves of Milwaukee and Chicago within three years, in which case the prosperity of New York canals, and consequently of New York city, may be considerably effected. Mr. Seymour recommends the deepening of the New York State canals at least one foot, which can be done for one million dollars. Our Government is now engaged in deepening the harbors at Buffalo and at the channels between the Great Lakes, and it is believed that the tolls can be reduced on the canals from Buffalo to New York from 5½ cents per bushel to 4½ cents and still make them self-supporting. If this is done it is believed that the New York canals will enjoy a long period of prosperity.

EXPLOSION.—A boiler in the flouring mill of Frank Schmidt, at Kimswick, Mo., exploded Sept. 3rd with terrific force, almost completely demolishing the mill and killing John and Frank Schmidt, sons of the proprietor, and Chas. Baker, a boy of fourteen years, and seriously wounding Frank Schmidt, Sen., and the miller named Taylor. Fragments of the boiler and furnace were hurled in all directions, some of them passing through the brick walls of the National Hotel, a hundred yards away, and doing considerable damage to the building. The loss is estimated from $15,000 to $20,000.

W. de la Barre on Roller Corrugations.

[Extract from a letter to the North Western Miller Feb. 1st 1881.]

Mr. Putz states that he has found that a roller mill produces 30 per cent more work with a saving of 47 per cent of power compared with millstones. Such are the results of a series of experiments made by two eminent millers of Europe. The rolls used in their mills are of the well known Ganz pattern with sharp corrugations identical with the rollers manufactured in this country by Messrs. Stout, Mills & Temple, of Dayton, O., and Messrs. E. P. Allis & Co., of Milwaukee, Wis. I cannot find any record of such work with round or dull currugations, although experimets with these have been going on for a number of years in Europe and nothing has come of it, and this kind of corrugations is generally considered a failure. I am fully aware that not everything which is good and nice abroad is just the same thing at home, and *vice versa*. But it may be given here as a singular coincidence, with perhaps just a little significance, that the only two mills in Budapest which still grind with round or dull corrugations, are again the leading mills this year that pay no dividends to their stockholders. The Ofen Pester, H. Haggenmacher's, Victoria, Panonia and other mills of Budapest, keep their corrugations sharp and pay good dividends.

Large experiments with different kinds of corrugations have for years been made in Europe, and there is no roller corrugation in use in this country that has not been, or is not now in use in Europe. Mr. F. Wegmann, in Zurich, the venerable inventor of roller milling, has a little museum of 207 different styles of roller corrugations, and it is a sight to behold the many novel and often ingenious designs that have been suggested. Mr. Wegmann, in Zurich, Ganz & Co., in Budapest, Escher, Wyss & Co., in Vienna, and others have expended many thousands of dollars in experiments, and some of the ablest millers of Europe have been busy trying to establish by thorough scientific trials and tests what kind and form of roller corrugations would be the most practical, useful and best. All of of them have returned to the sharp fluted rollers of the Ganz pattern, which stand now, at least in Europe, in universal esteem.

I am aware, and freely admit, that in grinding spring wheat a round or dull currugation of a roller mill produces a somewhat whiter break flour than the sharp corrugated rolls; but this is done at the expense of a lot of middlings, and middlings are what we are grinding for in this gradual reduction age. It must be the aim of every miller who uses the rolls for breaking the wheat to make as many middlings with as little break flour as possible. If I can make more middlings with the aid of sharp corrugation rolls, can I not afford to put back a certain percentage of them to bring up the break flour to the required standard? I can do this after the middlings are purified, which is certainly better and more advantageous than to *mash* up a lot of middlings material in the breaks with all the impurities adhering to it. Some smooth-tongue machine agents will tell you that their machines produce all the way from 70 to 90, or still more, per cent of patent flour; the break flour from their rolls is so white and nice that you can put it into the Patent without hesitation, and so on. These men are ever ready to supply you with samples of breaks and flour, and their little hand-sieves for sifting out middlings are always in their hands. These men generally fail however to tell the miller how much wheat it will take to bring about such marvellous results, but that of course is of no consequence to them. It makes some difference to the miller, however, whether he can make a barrel of flour from 270 or 285 pounds of wheat. These same agents or machine men will tell you also that the flour made on their apparatus brings from 25 cts. to $1.00 per barrel more in New York, Boston or Philadelphia than the flour made on other people's machines; but if you take the trouble to write a few letters to Eastern flour dealers, you will learn that the schedule of prices points the other way and that they are getting actually that much less for such flour. Consumers and dealers are not so easily fooled; they will not pay for a mixture of break and middlings flour the same price as for a clear, pure and legitimate middlings flour.

IN the year 1879, 13 mills in Budapest produced 4,309,261 meter-centners of flour; in 1880 14 mills with large additions and improvements produced 3,683,005 meter-centners, showing decrease of production with enlarged capacity, of 626,256 meter-centners.

Sharp vs. Dull Rolls.

A Communication from W. D. Gray, M. E. of Milwaukee, Wis.

Editor United States Miller:

It was an Editorial in the *Milling World* of Buffalo, N. Y., that tried to censure my plain and simple letter I wrote to you, and which you gave room in your January number. The subject of my communication was the gradual introduction and improvement of Rolls and Roller mills in this country.

The able writer introduced his rather lame attack with an abundance of flourish. He is a scholar I admit. (Why, Mr. Editor, I had to be aided by my Unabridged to read his elegant English.) After having told me some pleasantries about my ability as a mill builder, and of my large experience in perfecting Roller mills, he endeavors to brand me as a theorist and hero of the pen. These assertions are rather ridiculous ones, as I am known to be neither a theorist nor a professional writer. I never made pretenses to be such. The Editor of the Buffalo Paper "*did not want to discuss the superiorities of either dull or sharp corrugations*," yet went on to declare the dull corrugations to work all-right, and my affirmation to the contrary—wrong. I wonder, where the Editor of the *Milling World* got his valuable experience. Is he a practical mill builder? I think, he is not. Is he a practical miller? I think not. Someone must have influenced him and told him those *stubborn* facts he mentions with so much emphasis, for I never shall believe that the running of a milling paper, having sprung into existence less than two years ago, can make the Editor so wise, can furnish him so much practical experience as to competently judge about technical difficulties, which often prove to be a "bore" even to practical "dusties." I rather suspect someone has inspired our Editor of the Buffalo Paper to blow the horn for the dull rolls, and meantime used him—as a twenty foot pole to tickle with. O, trust those professional hero's of the pen, they are capable of anything!

He acknowledged that my *theory was good*, that I had a large experience, and yet he declares me to be wrong, putting his foot on it with the remark, "facts are stubborn!"

My views about the superiority of sharp corrugated rolls I have mainly obtained by practical experience. I have found out that those rolls, or machines, which will reduce the wheat to middlings and clean the bran, making thereby the least flour, are the best. I recapitulate, that the object of the first reduction is to split the wheat and relieve the germ and the dust in the crease of the berry. This the sharp rolls will do better than the dull ones. In all well regulated mills, where the builder and the miller understand their business, the flour from this reduction will go to Low Grade, as it is fit for nothing else, unless you use the dull rolls. In that case, you will have better flour. Why? Because you make more of it, as you break up good middlings and put that flour together with the same amount of dirt you would get separate by using sharp corrugations. As to the cleaning of bran, I think, had he known more about it, he would have left that part out, for it is generally considered by the men that use the dull rolls, that the sharp ones are the best for bran.

I am aware that your readers will know exactly who has the best chances to be right in his judgment on sharp or dull rolls, the Buffalo editor, with two years of experience in running a mill—ing paper, or myself, with good theory and practical experience, as acknowledged even by our Buffalo critic.

He tells us, if we would follow the first break flour from the dull rolls through the mill, we would find that it does not go to the Low Grade flour, follow it to the market, and it does not bring a low grade price. This I will not dispute; this *stubborn fact* will answer for us both. But I will tell you just what he has done. He has taken a peck of dirt and put it into a barrel of Patent flour, and if you will follow this Patent flour to the market you will find the price falls short of the best Patent. This brings me to what I said in my letter. I am of the candid opinion that the editor's attempt of discussing the merits of the dull rolls over the sharp ones, will prove, similar to the work of the Danites, a lost one, a complete failure, considering the shrewdness of the plurality of our smart, energetic, practical men. I would like to draw the attention of your readers to a letter I have just read, from the pen of Mr. De la Barre, of Minneapolis, Minn., in which he expresses his views on the subject of roller mills, and remain,

Yours truly, W. D. GRAY.

Adulterations of Food.

Abstract of a paper read before the meeting of the American Social Science Association, at Saratoga, by Professor S. W. Johnson.

To read the many undeniably authentic and the many more apparently true accounts of the tricks that are stated to have been practiced upon human food, here and there, formerly and recently, is really a shock to one unprepared for the dismal story. The revelations of the experts who have studied these matters are of a sort to exasperate and enrage any honest citizen. Worse than that, they not only convince us that a great deal of other people's food is fraudulently made unfit for any human stomach, but they actually unfit our own stomachs, temporarily at least, for any food whatever.

Knowledge of the nature and extent of adulterations that have been practiced, is the first requisite in protecting ourselves from those that may be attempted; and here follows a brief account of some of the most conspicuous falsifications which are said now to be or recently to have been practiced on a few common articles of diet.

The statements here made are many of them correct beyond question, others are given on what passes current as good authority, but the writer cannot in all cases vouch for their truth.

Wheaten flour, which makes the most palatable and nutritious bread, has long been the subject of falsification. The most usual and most harmless adulterations have been the flour of other cheaper grains or seeds. Flour of rice, of barley, of peas, beans, buckwheat and of Durra or Egyptian millet, it is said, have thus been employed in England. It has long been a habit of many good housewives to add a small proportion of boiled potatoes to their wheaten dough in making bread, and this and similar mixtures are entirely proper in domestic bread so long as those concerned are satisfied; but in the hands of the British bakers, if we may credit English authors, the same practice has been adopted for the two-fold purpose of employing a cheaper flour and of retaining a greater percentage of water in the loaf. This mode of extorting larger profits from the public is justly regarded as an adulteration and a swindle.

A curious feature in British bread-adulteration is presented in the history of the so called "cones flour." This is supposed to have been originally the flour of a particular variety of wheat which was sold to bakers for the purpose of dusting their kneading troughs as well as the fashioned loaves to prevent the dough from sticking where it was not wanted. It is evident enough that any flour that is fit to make dough of is suitable to restrain the adhesion of that dough, and what the peculiar merits of cones flour once were cannot be clearly made out. But cones flour, or "cones" as the bakers termed it, was speedily made the means of turning a multitude of dishonest pennies, and its sale and consumption increased enormously until some master bakers directed their journeymen to mix a bushel of cones with a sack of flour,—more than enough to fully test the "dusting" power of the "cones," one would suppose. In short it appears that "cones" became the trade name of an article which was represented to have qualities serviceable in the manipulation of the baker's shop, but which was really a cheap and inferior flour valuable for putting money in the pockets of miller and baker, and for dusting the eyes of the police and health officers. We may well imagine that when the millers began to commend cones to the bakers as an "artful dodge" to further the interests of the trade, the former represented truly what was the real nature of cones at that time, and the bakers most likely thought that an invention which would enable them to get adulterating material under a respectable name was well worth paying for. So the millers thought too, and soon cones became anything that would swindle the public and if possible the bakers also and contained no wheaten flour at all, but was a mixture of the cheapest materials that could pass muster as a breadstuff.

Since free trade was adopted in England that country has been the head center of all kinds of adulterations. In 1860 the British parliament began a series of enactments to prevent the adulteration of food, drink and drugs, and in consequence of the investigations that accompanied these enactments a large mass of literature on the subject of food-adulteration has been published in the English language. This literature consists in the record of the researches of scientific men and in testimony elicited in the courts from experts and detectives, as well as from adulterators grown rich enough to retire from business or induced by prospect of greater profits to turn state's evidence.

To return to bread-adulteration, the use of bean flour is said to have been resorted to in order to give due tenacity and lightness to bread made from damaged wheaten flour. Boiled rice was employed to increase the quantity of bread to be obtained from a sack of flour. A sack of two hundred and eighty pounds should yield, according to Letheby, ninety-five four-pound loaves; but by adding three or four pounds of rice boiled for several hours in as many gallons of water to the flour, at least a hundred four-pound loaves can be got,—a gain of twenty pounds of bread, or more than five per cent. By this use of rice or of boiled potatoes, which being nearly pure starch are perhaps even more effectual than rice, the bread is indirectly adulterated with water.

Inferior flour is produced in immense quantities from grain damaged by incomplete growth, by injury from wet in the harvesting or storing, by incipient sprouting, mold or mustiness, as well as by the presence of the seeds of other plants. Flour itself once good is damaged in transportation and in storage. The endeavor to make an apparently good bread from cheap or even damaged flour is probably the reason why certain chemicals have been widely used in the making of bread.

Liebig states in his "Letters on Chemistry," that "the bakers of Belgium discovered twenty (now sixty) years ago how to bake from damaged flour by adding sulpate of copper—a poison—to the dough, a bread in appearance and external properties as fine as from the best wheat flour. Alum has the same effect as sulphate of copper; when added to dough it renders the bread very light, elastic, firm and dry, and the London bakers, in consequence of the demand for white bread, have been compelled to add alum to their flour. I saw (in 1840) in an alum factory in Scottland little mounts of finely ground alum which was destined for the use of London bakers.

To conceal its true nature, the powdered alum used to bear the trade names "hards" and "stuffs." Hassall not long ago asserted that "alum is used in bread-making nearly all over the United Kingdom." The proportion of alum used in England is said to range from 3 to 12 ounces to the sack of 240 pounds, according to the quality of flour. These quantities have been sometimes exceeded, it would appear, for not only does the baker put alum with the flour he buys, in order to deceive his customer as to the quality of the bread, but the miller or flour dealer mixes alum into the flour he sells, to deceive the baker.

However happy the effects of alum may be in improving the appearance of the bread and swelling the profits of miller and baker, the effects upon those who are obliged to eat such bread are liable to be most disastrous if indeed they may be not so inevitably. A very little alum in bread may not prove immediately or seriously injurious, but no considerable amount of such a powerful astringent is required to disorder digestion and ruin health, as is shown by a vast array of competent testimony.

The use of alum in bread has not been confined to Europe. Some twenty years ago Dr. Wetherill, of Philadelphia, examined twenty-four samples of bakers' bread of that city, and found alum in two instances. In 1873, Dr. Waller, of the Board of Health of New York, examined fifty-one samples of bakers' bread made in that city, and found six which were probably adulterated with alum and two with alum and sulphate of copper. Last year Dr. Leeds examined a number of bakers' loaves sold in Hoboken. N. J,. and in five cases found evidence of alum, which in one sample amounted to 28 grains to the 4-pound loaf.

The writer has investigated half a dozen samples of bakers' bread made in New Haven, Conn., without finding either alum or sulphate of copper. It is possible that the comparative immunity from bread adulteration under which we mostly suppose ourselves to be living, is but imaginary, and that falsification is actually practiced and remains unknown because the real facts have not been ascertained by thorough and systemetical investigation.

The use of alum for making (out of flour which of itself would give a dark, sticky, sodden bread) a white and flaky loaf, is not a recent invention. In the days of Henry VIII. of England, it was ordained that "his Highness's baker shall not put alum into the bread, or mix rye, oaten or bean flour with the same, and if detected he shall be put in the stocks."

Whether or no alum is mixed by the baker with our daily bread, it is a fact that alum, or its equivalent, is, or recently has been, an ingredient of some of the substitutes for yeast which is so largely employed among us. Yeast itself is a microscopic plant whose growth in wheaten dough generates carbonic acid gas, which inflates or "raises" the loaf. The use of chemicals mixed with the flour that will yield the same gas answers the same purpose, and has the advantage of shortening the time and lessening the labor of preparing bread. The chemicals best adapted in all respects for carbonating dough in the kitchen, are cream of tartar (bitartrate of potash) and soda of saleratus (bicarbonate of soda), and these two salts are the active ingredients of the best "baking powders." But as the supply of cream of tartar is limited, and its cost is considerable, various cheap substitutes have come into use. One of the cheapest that can be employed is alum or the sulphate of aluminum, which, mixed with bicarbonate of soda, produces carbonic acid gas abundantly, but contaminates the bread with an injurious or even poisonous substance. In 1878, Dr. H. A. Mott, of New York, stated that the "Patapsco Baking Powder" contained 20 per cent of burnt alum or its equivalent, the "Andrews" 22½ per cent, "Dooley's Standard Baking Powder 26½ per cent, and "The Charm" 30 per cent. More recently, Dr. Mott asserts that twenty-three brands of baking powder examined by him contained alum or a similar sulphate of alumina.

Before quitting the subject of alum in bread I ought perhaps to say that the effects of it upon the consumer have have been much discussed and some chemists in Europe, and I believe in this country also, have defended its use. Doubtless the people may survive the long continued ingestion of small quantities of alum, as of almost any poison, but the correct principal to adopt in fixing upon a standard of purity in cases of all articles which are understood to be essentially nutritious, is to stigmatize a deleterious adulterations the addition of even the smallest quantities of any substance which has decided poisonous or injurious effects. The recently published experiments of Dr. Mott, made upon dogs, are sufficient demonstration that bread containing alum is a highly dangerous article of diet.

Baking powders are also highly adulterated with terra-alba, which is a trade name for several sorts of white earth, being sometimes ground gypsum (plaster of Paris or sulphate of lime), sometimes carbonate of lime (whiting), and sometimes pipe-clay (kaolin). The cream of tartar and the saleratus sold by grocers are also often grossly weighted by admixture with worthless terra-alba.

If the wheaten flour and the wheaten loaf are thus adulterated, we should expect to find that other cereal foods are similarly falsified. So it happened in Great Britain, especially in Scottland, that oatmeal—which is a standard diet in prisons, work-houses and charitable institutions—is extensively mixed with cheaper barley meal, rice flour, and even Indian meal. Thirty years ago there was a famine in the Scotch Highlands, and some $300,000 was devoted to supplying the needy Highlanders with food. One of the contractors who supplied these unfortunates with oatmeal was suspected of adulterating the article, and was brought to trial. It was shown that the oatmeal was grossly mixed with bran and "thirds" (cheap horse-feed). The defender was convicted and punished, but he brought forward some of the principal millers of Glasgow to swear that the practice was quite common—was, in fact, one of the usages of the trade.

MINING IN MAINE.—Mining down in Maine is a funny business to lookers-on from the Pacific coast. The men running the mines appear to be old sailors and Nantucket whalers. They speak of the levels of a mine as "decks," and the force of men employed is the crew. The Superintendent is the skipper and the foremen are his mates. When the skipper passes through the main hatch and gets down to the bottom of a three-decker mine, he calls out along the main gangway toward where the "chase" (lode) was last seen, and asks his first mate: "How does she head?" "Sou-sou-west half west," says the mate. "Port your helm to the larboard and hold her a little more sou," says the skipper. "Aye, aye, sir," cries the skipper, "sou it is." Then, turning to his second mate, the skipper says: "Mr. Jones, are we making much water now?" "Just sounded the well, sir, and found but about four feet. I stopped the worst leak we had this morning at four bells." "Very well, sir; if she makes much water better man the pumps. Now, sir, if all is right below decks, suppose we go up to my cabin and splice the cable."—*Virginia Enterprise.*

Bran Reduction.

[A Communication and Translation.]

Editor United States Miller:

I find an article of interest to our milling friends in the December number of the *Ungarische Mueller Zeitung* (*Hungarian Millers Journal*) concerning the grinding of bran on corrugated rolls. It is with pleasure that I give below a translation of it, as it coincides with the views expressed by Mr. W. D. Gray, our American milling expert, who has been advocating the same process during the past three years in this country. He was successful in introducing this method of grinding bran. Long before he built the first mill for reducing wheat on rolls, he put into several of our large mills, rolls for grinding the bran and they met with success in every instance. Many millers, by buying roller mills for grinding their bran, thus made the first step towards subsequent entire remodeling of their mills. I think that your readers will not have forgotten that Gray's Corrugated Belt Roller mills were awarded the first prize at the Cincinnati Millers Exhibition, having been declared the "best bran cleaning machines." Here follows the article referred to:

GRINDING BRAN ON ROLLER MILLS.—BY HEAD-MILLER ALBERT PUTZ.

Many of the most important inventions and discoveries have been made simultaneously at different and frequently widely separated places. This was generally the case with crude inventions, the ultimate success of which was a matter of general study, inventions, so to speak, such as were floating in the air. When *grinding with rolls* had ceased to be thought of as a revolution of our milling system, but had really become an unavoidable mode of operation to every circumspect miller, I was constantly striving to still *improve* the manner of grinding, and as our mill at one time narrowly escaped destruction by fire, caused by a hot running millstone, I made up my mind to do away with the millstones also for the last operation they were yet used for and to replace them by rolls. The last operations are, as is well known, the grinding of the bran and dustings (from middlings through No. 7, 8, 9 and 10 cloths).

I selected a pair of worn rolls for my first experiment. The result was, a better quality of flour obtained, but the quantity seemed small to me. The bran was not sufficiently cleaned to suit me, yet I can say that the yield was not less than the one obtained by the millstones. By scrutinizing the bran, I came to the conclusion that a better yield of flour and middlings could be obtained with rolls than with millstones, and in spite of my little favorable first attempts, I continued to treat the bran with rolls, discarding the stones entirely. After a while I replaced these rolls by new sharp Ganz rolls, and the result was a good one.

During my experimenting I felt "tickled" about having made an invention, and I kept the thing secret until I could consistently make it public, which I intended to do next year. But this invention must have been "floating in the air," for I read in the *Un. Mueller Zeitung*, No. 49, that a remote fellow-craftsman had made the same discovery and had published it before I could do so. When I saw in the ensuing number, that this mode of treating bran on corrugated rolls had created well-merited attention abroad, I concluded to hesitate no longer and will proceed to announce my own experience in this line, whereby I expressly affirm that the details given below are true deductions of a careful trial with stones and rollers, which trial took place during the past week.

I superinfended both trials myself and did my best in favor of each. I chose a French burr of 50 inches diameter and the Ganz roller mill No. 8, the roll bodies having from 500 to 600 corrugations all around (from 20 to 24 per inch), and running to each other in the proportion of 1 to 3. I selected this construction of roller mill, as I knew by experience that these corrugations do not clog, do not pulverize nor weaken the bran, but cut out the flour and middlings far better than any other differently corrugated roll.

For each grinding contrivance I prepared an equal quantity and quality of bran, and both were set in motion at the proper speed. After 24 hours the stones had treated 16,000 pounds and the rolls 20,800 pounds. The percentage of grindings were as follows:

	Stones.	Rolls.
Flour through No. 12 Silk	3.2	6.5
Middlings through No. 10 Silk	1.9	2.7
" " " 8 "	2.0	3.2
" " " 7 "	7.3	10.6
Fine Bran " " 20 " Gauze	49.4	57.8
Course Bran over " 20 " "	35.8	16.5
	99.6	99.4

The grinding on stones therefore produced flour and fine middlings 15.8 per cent; the grinding on rolls 28.1 per cent, or 7.8 per cent more. I acknowledge that the rolls cut up the bran much more than the stones—they produced more fine bran than the stones. Now setting aside the better price of the flour, which is a good strong number whiter than the flour from the millstones, the increased quantity of it, and considering the greater capacity of the rolls over the stones, the rolls take a great deal less power than the stones, (which can easily be seen by noting the consumption of coal,) and I think it is not hard to see where the profit comes in."

Thus writes this old country headmiller. I will here add that Mr. Gray, whose assistant I have the honor to be, has not stopped at this point, but goes so far as to subsequently crush the rather poor looking bran from the corrugated rolls on *smooth* rolls, thereby getting off still more good looking flour. The tailings of the reel receiving the brushed bran are sent to a bran-duster to be finished. I read in the same number of the *Ung. M. Zeitung*, containing the "Bran Grinding" article, a part of the report of Mr. Jos. J. Van den Wyngaert, the President of the German Millers Association. This gentleman was sent to the Cincinnati Miller Exhibition by the German government as an expert. In his report he writes as follows:

"The firm that has solved the problem of driving rolls by belts in the best manner is Edw. P. Allis & Co., of Milwaukee, Wis. This firm is the same that builds the Wegmann Roller mills with either porcelain or iron rolls. They have greatly improved the original mills. Amongst the improvements is to be noted that they make the frame in one casting, thereby greatly increasing the stability of the mills. The pulleys are always double the diameter of the rolls and the belts can easily be tightened so that a slipping of belts can not take place. The rolls are found principally in the best and largest mills in America."

Following the above in his report Mr. Van den Wyngaert describes the other wheat and bran grinding machines, viz: Newell's Patent Grinder, Millbanks Mill, Jonathan Mills Gradual Reduction and Bran Grinding Mills, and Downton's Roller Mills.

Of all the above he speaks highly as of efforts to construct something better than was tried and used for years with good results in Germany—something to beat the rolls with best dress applied in the Ganz manner, and expresses his distress that all those efforts up to date have been in vain.

The rolls with the dull corrugations he does not mention. They were not then fully complete in detail, or at any rate were not in vogue at the time of the Exhibition.

Our German expert will surely regret that in his skeptical reports on American milling he could not surprise and amuse his European friends with the news that the long discarded "Vienna round wave corrugations" was lately revived in this country and claimed to be the most successful roller dress under the sun—that owing to very energetic advocation of the same by their agents, who glibly promise the credulous millers a yield of 90 to 92 per cent of Patent flour, quite a number of millers had put in such new invention, and a still greater number of millers were waiting and holding back from rebuilding, not knowing which were best, the dull dress or the sharp one. Surely he would have congratulated his German friends that such is the case, as they are afraid of American transatlantic competition. The German periodicals contain many items on that subject. They give due credit to the great amount of wheat production in this country, about the growing export of wheat and cereals, but at the end of each item they quiet the fears of the millers by assuring them, they need not be afraid, as the ground was so impoverished by our manner of farming that the wheat, now being glutinous, would soon be starchy and poor and only fit for starch and glucose factories. They speak about the rapid growth of the exportation of American flour, but again quiet their readers by assuring them—it was weak, was not whiter than their average number, was hurt by transportation, tasted bitter and Lord knows what else. I see that a cargo of American apples went to Europe, 80 per cent of it was well preserved, but the rest beginning to rot. A physician was called, perhaps by the Government, to examine the apples. He declared that the fruit was injurious owing to the presence of a great percentage of a rotten mass, which produced contagious fungi of diphtheria, croup and other throat diseases, and cautioned the people not to buy. American imported cattle are claimed to be spreading lung diseases over there, and, *horribile dictu*, increasing the specifical American complaint "dyspepsia!"

Our bacons and hams are full of trichinae, and it is said over there that none but the poorest ware was exported from here. Still—our export grows! I should not wonder if the learned doctor referred to, or another, by skillfully examining American flour, would find some vermin in it equally injurious to the system of Europeans as trichinae.

R. BIRKHOLZ.

[CORRESPONDENCE]

Hard versus Soft Wheat.

A TIMELY CAUTION TO THE FARMERS OF THE NORTH WEST.

To the Editor United States Miller:

As the time is rapidly approaching when farmers will be selecting and putting in order their seed wheat it would be well for them to bear in mind that the reputation which Minnesota has acquired as a wheat producing State and the favor which flour made in Minnesota has found in the Eastern and European markets is attributable to the intrinsic merit of the Fyfe wheat. This variety alone will make the high grade potent and strong baker's flour for which Minnesota is so justly celebrated. A number of varieties of soft wheat have been introduced, within the past three years, every bushel of which bought by a miller, has been a positive damage to him, in lowering the standard of his flour.

The past season some of these soft varieties yielded more bushels per acre than Fyfe, hence many farmers this season express a determination to forsake Fyfe entirely and sow only soft wheat. Is not the increased yield attributable to the change of seed, still adhering to the old Fyfe?

The milling business of Minnesota is the leading industry of the State, and as it prospers or suffers, so all other industries must be effected. That the milling interests must suffer severely, if the farmers forsake the hard and raise only the soft varieties of wheat, is an undeniable fact. This is a matter of the utmost importance to all. The time has come for a united effort, and thorough agitation of this matter, not only on the part of the farmers, and millers, but all who have any interest in the welfare and prosperity of the State. Our State, Dakota and Manitoba, are alone favored with climate and soil necessary to produce the hard wheat. The question then is, shall we "sell our birthright for a mess of pottage?" Shall we stand by the old Fyfe wheat and maintain our position in the van of wheat and flour producing States, or forsake it, and take a place in the ranks of States, producing soft wheat only, thereby depreciating the value of our farms and their products, and the mammoth mills which have sprung up as if by magic all over our young State? Farmers of Minnesota, the question is to be decided by you. How will you decide?

BON ACCORD.

Winona, Minn.

The Trouble of Shipping Coal in Winter.

The subject of car supply and coal shipments is the all-absorbing topic among the operators and miners of this coal section. Every shipper says his orders demand double the number of cars he is receiving daily. Now this is all true, and each one is puzzling his brain to know why the railroad company don't furnish more cars to meet this want. Without pretense of speaking by authority, we will simply refer to last week's report of coal shipments from this division of the railroad, from which we learn that 32,279 tons of coal passed over the Tyrone scales, over which, during the corresponding period of last year, 51,864 tons were shipped. This decrease of nearly 19,000 was not owing to a lack of orders, but an utter impossibility to forward over the mountains. It requires an average of three hundred and fifty cars daily, of an average load of fifteen tons to each car, to do the work that was done last week. This number of cars, with their total freight of 5,250 tons, had to be taken up the mountain grade of nearly 150 feet to the mile to the summit, and from thence down a similar grade to its base, with three to four engines to the trip and from twelve to fifteen trips per day. This work can be done in mild and moderate winters with some degree of certainty, but how uncertain is railroading on such grades and curves with daily snow falls and frequent frigid waves of zero and lower temperature. Should any of our readers be somewhat skeptical upon the question, let them just get a little practical information by stepping into any shipper's yard, and see the laborious operation of moving a single car with but two inches of snow on the rail, compared with moving the same on the clear rail free from snow. Ten minutes' glance will be sufficient. As it is, and to do the work that is now done, necessitates the working of the larger portion of the employes of the road from three to six hours extra on each day's duty. This severely imposed task could be easily borne in pleasant weather, but how terrible to brave the driving storm and piercing winds for twelve to eighteen hours consecutively. This must all be done to accomplish this work. These are very nearly the facts of the case as we gather them from observation, and we know it is also a fact that no party would rejoice more deeply than the superintendent of this division, could he just double the carrying capacity of his road. A few months ago, we heard him express the hope that the capacity of the road could be worked up to eight hundred car-loads daily; but then he, like others, did not dream of the severity of the coming winter. The utmost is done that can be done, and we have no doubt but the coming spring will witness movements on the part of the railroad company that will insure the transportation of all the coal that can be sold from this region, or at least to move 100,000 tons weekly.—*Philipsburg Journal* (*Pa.*)

Concerning the Location of Steam Engines.

This will depend upon circumstances, but it is far from true economy to place an engine in a dark cellar or in some inconvenient place above ground. The engine, as the prime mover, should have all the care and attention which may be needed to insure regular and efficient working.

Machinery in the dark is almost sure to be neglected. If the design of the building or the nature of the business is such that the engine must be located underground, there should be some provision for letting in the daylight; the extra expense incurred will soon be saved by the order, cleanliness, and fewer repairs required, following neglect.

The engine should always be close to, but not in the boiler-room.

Many a high-priced engine has had its day of usefulness shortened by the abrasive action of fine ashes and coal dust coming in contact with the wearing surfaces. There should always be a wall or tight partition between the engine and fire room.

The foundations for an engine should be large and deep. Too many manufacturers in making dimensions on foundation drawings for engines, make them altogether too shallow.

The stability of an engine depends more on the depth than on the breadth of the foundations. Stone should be used for foundations rather than brick, but if the latter must be used they should be hard burned, and laid in good cement rather than a lime mortar. If the bottom of the pit dug for the engine foundation be wet, or the soil uncertain in its stability, it is a good plan to make a solid concrete block, about a foot and a half thick, on which the foundation may be continued to the top. If such a concrete block be made with the right kind of cement it will be almost as hard and solid as a whole stone.

Questions for Engineers and Firemen.

The *American Machinist* submits the following questions which engineers and firemen will do well to consider. Paste them up somewhere and read them once in a while and reflect and if necessary act:

How long since you where inside of your boiler?

Were any of the braces slack?

Were any of the pins out of the braces?

Did all the braces ring alike?

Did not some of them sound like a fiddle-string?

Did you notice any scale or flues, or crown sheet?

If you did, when do you intend to remove it?

Have you noticed any evidence of bulging in the fire-box plates?

Do you know of any leaky socket bolts?

Are any of the flange joints leaking?

Will your safety-valve blow of itself, or does it stick a little sometimes?

Are there any globe valves between the safety-valve and the boiler? They should be taken out at once, if there are.

Are there any defective plates anywhere about your boiler!

Is the boiler so set that you can inspect every part of it when necessary?

If not, how can you tell in what condition the plates are?

Are not some of the lower courses of tubes or flues in your boiler choked with soot or ashes?

Do you absolutely know, of your own knowledge, that your boiler is in safe and economical working order, or do you merely suppose it is?

These are questions of great importance.

How, and Where to Order Bolting Cloth.

In ordering Bolting Cloth, Millers know that it pays to buy the heaviest and most uniform silk to get the best results in bolting, and also for durability, and they should be particular in ordering of parties who handle the best and nothing but the best brand. Another important thing they should observe in sending in their orders and that is; that the order is sent in a way that there can be no possible way of a mistake occurring in the making of it, which is too often the case on account of the order not being perfectly plain, and if the cloth is not spoilt entirely, it takes considerable time to change it to fit the reel, and then the fit is not so perfect as when made by the mill-furnisher who has this department under the superintendence of a competent foreweman, especially traded to the art. For tacking the cloth on the reel head and tail and ribs, nothing but the best A. C. A. ticking should be used, and the silk used in making up the cloth should be the best make of show silk.

Millers in ordering bolting cloths should always observe the following if they wish to secure a perfect fit to their reels:

1st. Exact length of Reel over all?
2d. Diameter of Reel?
3d. Measurement around Reel?
4th. Number of Ribs in Reel?
5th. Distance from centre to centre of Ribs?
6th. Number of parts the Cloth is to be made in?

A very novel idea of Edw. P. Allis & Co. in advertising bolting cloth is, when sending out their price-list of bolting cloths, to have a diagram of a cloth made out on the opposite side of the pricelist, so the miller can fill in the blanks and send in his order without fear of a mistake occuring. This firm have been kind enough to furnish us with this diagram and we take pleasure in presenting it to our readers as it may be of service to them:

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MESSRS. E. P. ALLIS & CO., MILWAUKEE, WIS.

Please fill the following order with Genuine *Dufour Bolting Cloth.*

Exact Length of Reel over all.....feet.....inches.

HEAD.	.....in. TICKING.		.....in. TICKING.	TAIL.

Diameter of Reel.....inches.
No. of Ribs.....
Distance from centre to centre of ribs.....inches.
To be made in.....parts.

.....

It is but justice to say that this firm sell only the celebrated "Dufour & Co.'s Old Dutch Anchor" brands, and by *adhering strictly to this*, and putting it before the public in a way that will attract the notice of the millers and assure them that by ordering here they can rely on what is sent them as being the *Genuine Dufour Silk* and the fit to be perfect, their trade in this branch alone is enormous. This celebrated cloth is too well known for any description as to its superiority over other silk. Every piece of this silk received by Edw. P. Allis & Co. is stamped with the following cut, and millers, when trading with this well known firm, can be assured that they are getting the genuine article and not one of the many inferior brands.

For the benefit of the milling interests this firm kindly favors us with the number of meshes per lineal inch for each number of bolting cloth as per the table below, and also some interesting facts about Gritz Gauze and Wire Cloth. Millers will find it useful in determining the cloth needed when altering their mill:

0000	16	Meshes	to	the	lineal	inch.	7	84	Meshes	to	the	lineal	inch
000	22	"	"	"	"		8	92	"	"	"	"	
00	28	"	"	"	"		9	100	"	"	"	"	
0	36	"	"	"	"		10	108	"	"	"	"	
1	46	"	"	"	"		11	116	"	"	"	"	
2	54	"	"	"	"		12	124	"	"	"	"	
3	58	"	"	"	"		13	132	"	"	"	"	
4	64	"	"	"	"		14	140	"	"	"	"	
5	70	"	"	"	"		15	148	"	"	"	"	
6	76	"	"	"	"		16	160	"	"	"	"	

In Gritz Gauzes the following numbers are made: 16, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 64 and 68.

These are numbered so as to indicate the number of meshes to the current inch, and correspond in this respect with the usual numbers of bolting cloth as follows:

0000	is	equal	to	No.	20	1	is	equal	to	No. 50
000	"	"	"	"	26	2	"	"	"	" 56
00	"	"	"	"	30	3	"	"	"	" 60
0	"	"	"	"	38					

But as the threads are very heavy, it is necessary to adopt the following scale to accomplish the correct result in bolting:

0000	results	as	No.	16	3	results	as	No.	54
000	"	"	"	20	4	"	"	"	58
00	"	"	"	26	5	"	"	"	60
0	"	"	"	34	6	"	"	"	64
1	"	"	"	44	7	"	"	"	68
2	"	"	"	50					

In wire cloth the following table will show the comparative size of meshes with Silk Bolting Cloth. To Millers adopting the Roller System, where so much of this is used for scalping purposes, this table may be of interest.

No. 18	Mesh	Wire	Cloth	equals	No.	0000	Silk	Bolting	Cloth.	No. 70	Mesh	Wire	Cloth	equals	No.	6	Silk	Bolting	Cloth
No. 22	"	"	"		No.	000	"	"		No. 80	"	"	"		No.	7	"	"	
No. 28	"	"	"		No.	00	"	"		No. 90	"	"	"		No.	8	"	"	
No. 30	"	"	"		No.	0	"	"		No. 100	"	"	"		No.	9	"	"	
No. 36	"	"	"		No.	1	"	"		No. 110	"	"	"		No.	10	"	"	
No. 50	"	"	"		No.	2	"	"		No. 120	"	"	"		No.	11	"	"	
No. 54	"	"	"		No.	3	"	"		No. 125	"	"	"		No.	12	"	"	
No. 60	"	"	"		No.	4	"	"		No. 130	"	"	"		No.	13	"	"	
No. 64	"	"	"		No.	5	"	"		No. 150	"	"	"		No.	14	"	"	

Friction—Its Causes and Effects.

Friction in machinery is resistance offered to motions, arising from the interlocking of minute projections and depressions in the working surfaces. Human agency cannot produce a surface that, under the microscope, does not present these projections and depressions. The finest cambric needle, under the above conditions, looks like a moth-eaten crowbar, so to speak. The best machine is one that, accomplishing the result for which it was designed, charges the least toll of the original power for its passage through it. Oils, etc., reduce friction, because they fill up the depressions, thus preventing actual contact by floating the surfaces apart. The oil, in any case, must be suited to it. Thus, light sewing machine oil would not do for the driving boxes of a locomotive, because of its thinness. It would be forced out of the depressions in the bearing by the weight. Engine oil applied to a sewing machine would add to the friction, because of its thickness, body and cohesion. Therefore, heavy bearings require a heavy oil, which will, by its consistency and cohesion, in and of itself, retain its position on the wearing surfaces. The poetry of friction is beautifully illustrated by the transmission of power by frictional contact, the depression in the face of one wheel fitting over the projections of the others, like a pair of gears. Locomotive engineers have frequently noticed the fact that an old pair of driving wheel tires, when worn so as to fit the entire top of the rail, are not as effective as when the tire comes into contact in but a small portion of its surface. The reason is that, when the entire surface of the tire comes into contact with the rail, it is prevented by a minute covering of dirt, etc., from forcing its surface into actual contact. Sand is, therefore, necessary to grind away this covering of dirt. When, however, but a small portion of the tire comes into contact with the rail, having the same weight on it as before, it, by virtue of this extra weight on a small surface, forces the dirt, etc., out, and interlocks by actual contact with the rail.

When a bearing runs dry, abrasion or cutting occurs, because the projections are allowed to interlock, and the stripping off of these projections, like the teeth of the gear, is "cutting."

Cutting progresses so rapidly when once commenced, because the original projections on the wearing surfaces are much smaller and finer than those which result, or are secondary to the tearing off of the first.

Thus, being larger, more metal is removed. Babbit metal, brass, etc., are well adapted for bearings, because these projections, being soft, rivet down, are burnished over instead of stripping off, presenting a smoother surface. If the builder of the first locomotive who geared his engine into a rack laid under the engine between the rails, had examined with a microscope the smooth surface of a driving wheel and rail, he would have found a much more efficient gear and rack than he could have constructed. He carried out on a larger scale nature's idea.

Morin and Conlomb are accepted authorities on friction, and their investigations have established the law that friction does not increase with increased surface, the weight or force pressing the surface remaining the same. Thus, a brick-shaped piece of metal would offer the same frictional resistance, whether down on its edge or side, the surface being twice as great in the latter case. When drawn on its side, the greater surface prevents the interlocking of the faces to the same extent that occurs when drawn on its edge, but the greater surface inter-locked offers the same resistance as the lesser surface more deeply in contact.

It is plain therefore that a heavier oil would be needed in the latter case to prevent contact. The increase of velocity, merely, does not increase friction. This is, however, dependent greatly on secondary or incidental causes, such as resistance of the air, generation of heat, etc. Pressure alone, therefore, governs the amount of friction.

The time that surfaces are in contact, especially if such surfaces are soft, increases the frictional resistance on the start, as time allows the projections and depressions to become acquainted with each other, so to speak, and more deeply ingratiate themselves in each other's affections, by hunting up accommodating depressions to work into. Thus, an engine is "stiff" on the start in the morning, having lain idle over night, mainly from this cause.

Exports of Wheat, Flour, Corn and Corn Meal for the Past 30 Years.—The following table exhibits the quantity of wheat and corn, including wheat flour and corn meal, exported each year from 1850 to 1880, inclusive, taken from the latest reports issued by the Bureau of Statistics of the Treasury Department:

Year ended, June 30—	Wheat and Wheat Flour. Bushels.	Corn and Corn Meal. Bushels.
1850	6,843,177	7,632,560
1851	10,937,232	4,320,899
1852	14,291,565	8,351,495
1853	17,084,272	3,123,381
1854	26,137,402	8,798,528
1855	6,219,314	8,876,417
1856	23,952,694	11,466,708
1857	31,274,569	8,575,334
1858	24,730,056	5,716,693
1859	13,945,224	2,755,538
1860	15,907,335	4,248,991
1861	50,604,959	11,491,496
1862	59,258,720	19,919,189
1863	55,915,661	17151,268
1864	39,689,773	5,146,122
1865	21,657,591	3,610,492
1866	15,402,828	14,465,751
1867	11,996,888	16,026,947
1868	25,284,802	12,493,522
1869	28,501,264	8,286,665
1870	52,169,113	2,140,487
1871	50,747,190	10,673,553
1872	37,738,487	35,727,010
1873	50,733,672	40,154,374
1874	89,463,351	35,985,834
1875	70,926,253	30,025,086
1876	72,782,926	50,910,532
1877	55,372,103	72,652,611
1878	90,167,959	87,192,110
1879	147,686,649	87,884,892
1880	180,304,180	99,572,329

Drunken Geese.

When geese take to drink, the result is preposterous, for Nature never meant geese to get intoxicated. A short while ago, however, a farmer's wife in Germany unwittingly made all her geese drunk. She was bent upon making some cherry brandy; but as she found, during the process, that the fruit was unsound, she threw the whole mass out into the yard, and, without looking to see what followed, shut the window. As it fell out her flock of geese happened to be waddling by at the time, and, seeing the cherries trundling about, at once investigated them. The preliminary inquiry proving satisfactory, these misguided poultry set to and ate the whole lot. The effect of the spirituous fruit was soon apparent, for on trying to make the gate which led from the scene of the debauch to the horse-pond, they found everything against them. Whether a high wind had got up, or what had happened, they could not tell, but it seemed to the geese as if there was an uncommonly high sea running, and the ground set in towards them with a steady strong swell that was most embarrassing to progress. Meanwhile the dame, the unconscious cause of the disaster, was attracted by the noise in the fowl-yard, and looking out saw all her ten geese behaving as if they were mad. The gander himself was balancing himself on his beak, and spinning round the while, in a prodigious flurry of feathers and dust, while the old grey goose was lying stomach upwards in the gutter, feebly gesticulating with her legs. Others of the party were no less conspicuous for the extravagance of their attitudes and gestures, while the remainder were to be seen lying in a helpless confusion of feathers in the lee scupper, that is to say the gutter by the pig-stye. Perplexed by the spectacle, the dame called in her neighbors, and after careful investigation it was decided that the birds had died of poison. Under these circumstances their carcases were worth nothing for food, so they set to work then and there and plucked the ten geese bare. Next morning the good woman got up as usual, and, remembering the feathers dowstairs, dressed betimes, for it was market day, and she hoped to get them off her hands at once. And then she bethought her of the ten plucked bodies lying in the porch, and resolved that they should be buried before she went out. But as she approached the door, on these decent rites intent, and was turning the key, there fell on her ears the sound of a familiar voice—and then another and another, until at last, the astonished dame heard in full chorus the well-known accents of all her plucked and poisoned geese. There they stood, the ten miserable birds, with splitting headaches and parched tongues, contrite and dejected, asking to have their feathers back again. The situation was painful to both parties. Here were the geese before her, bald, penitent, and shaking with the cold; there in the corner were their feathers, in a bag. But how could they be brought together? The thing was out of the question, so sitting down she made them some flannel jackets. How the birds fared this history does not relate, but no doubt the geese were wiser in their jackets than they were in their feathers.

Parties desiring to buy or sell a mill, or get a situation in a mill, or in want of a miller or journeyman millwright, should make their wants known through the columns of the United States Miller.

Absenteeism in Excelsis.—The other day, we are told, an Englishman went over to Ireland to see a friend of his, who is an Irish landlord. He said that he should like to meet one of the most ardent openents of landlords, and his friend referred him to the village blacksmith, who, he said, was a good enough fellow, but who, he believed, contemplated shooting him shortly. To the forge he betook himself, and the blacksmith explained the wrongs of Ireland "Are we not," he said, "suffering from absentees taking from Ireland all the money that we earn, and do you suppose that we mean to continue to pay this tribute to the Saxon?" "But," replied the Englishman, "here there are many resident landlords." "You are mistaken," replied the blacksmith. "I know the country, and I tell you it is full of absentees."—*The Farmer. (London).*

New Mexico.

New Mexico is now sharing with Arizona an influx of population and a rapid increase in prosperity. The summer climate of the northern part of the Territory is delightful. At Santa Fe, which has an altitude of about 7,000 feet, the nights are always so cold that heavy blankets upon the beds are comfortable, and the heat at midday, although sometimes great, is never oppressive. The winters are mild and sunny, with comparatively little snow. The low altitudes in the central and southern portions of the Territory are very hot and dry, but on account of the absence of moisture in the atmosphere and the exceedingly rapid evaporation, the apparent intensity of the heat is much reduced. The temperature of the mountains is always and everywhere delightful. The country has not yet been prospected to any extent. It lacks facilities for reduction of ores and means of transportation. But all this will be remedied before long. The mining outlook in the Territory is at the present time very encouraging. In the northern counties new mills are being erected, and machinery put in with activity. In the middle counties smelters are being erected, new discoveries are being made and parties of men are fitting out at every station for a few weeks' trip into the mountains. Gold, silver, copper, carbonates of lead and galena are found at almost every turn. The Black Range, Mongollons and Magdalenas are showing prospects that to say the least are encouraging considering the amount of development.

Things Worth Knowing.

How to Preserve Wood.—The improved French method of preserving wood by the application of lime is said to be found to work well. The plan is to pile the planks in a tank and to put over all a layer of quicklime, which is gradually slacked with water. Timber for mines requires about a week to be thoroughly impregnated, and other wood more or less time, according to its thickness. The material acquires remarkable consistence and hardness, it is stated, on being subjected to this simple process, and the assertion is made that it will never rot. Beechwood prepared in this way for hammers and other tools for iron works is found to acquire the hardness of oak, without parting with any of its well-known elasticity or toughness, and it also lasts longer.

A simple adhesive for rubber belts is made by sticking powdered chalk, which has been evenly sprinkled over, to the surface of the belt by cold tallow or boiled linseed oil.

Rice Cement.—Mix powdered rice with a little cold water and then gradually add boiling water until a proper consistency is acquired, being careful to keep it well stirred all the time; lastly, it must be boiled for one minute in a clean saucepan. This adhesive is beautifully white and almost transparent, for which reason it is well adapted for fancy paper work, which requires a strong and colorless cement.

Foaming in Steam Boilers.

ITS CAUSE, EFFECT AND PREVENTION.

Foaming or priming means that the water of the boiler is in the state of violent agitation, rising and falling rapidly in the form of waves, or that the steam is mixed with water in the form of spray. Foaming is a source of great inconvenience, and not unfrequently of danger, on account of the uncertain and wrong indications of the water level given by the gauges; and, as the water is carried with the steam into the cylinders, it causes a serious loss of efficiency, and may cause a breaking down of the engines.

Foaming is made evident by the boiling up or the rapid and irregular oscillations of the water in the gauge-glass, and by the sputtering sound produced as the mixture of steam and water issues from the gauge-cocks. When the water is carried over into the cylinders its presence is made known by a clicking noise caused by the partial colapse of the piston rings, and, when the water is present in large quantities, by the thumping of the piston at each end of the stroke.

All boilers are apt to foam when the water contains much mud or dirt of a mucilaginous nature. Soda, introduced into the boiler to neutralize the fatty acids contained in the feed water, often produces foaming. The various organic substances introduced into the boilers to prevent the formation of scale are apt to produce the same effect. The engines of the naval vessel *Hecate* were broken down by excessive foaming, caused by the lime placed in her boilers to preserve them and not removed before getting up steam. When a vessel coming from the sea enters fresh water, or from the river enters the sea, the boilers foam frequently. In all such cases it is advisable to change the water in the boiler as rapidly as possible by opening the surface-blow valves wide and putting on strong feed.

The plan of stopping foaming by covering the surface of the water in a boiler with a layer of oil or molten tallow injected through the feed pumps is not to be recommended. It is not only an expensive remedy, but the decomposition of the animal or vegetable fats at high temperatures, and in contact with metals, produces fatty acids, which are very destructive to boilers.

Boilers are liable to foam when they have an insufficient and low steam room, a contracted water surface, and such an arrangement of the internal parts as to render the circulation of the water defective. It may be assumed that any boiler will foam more or less when evaporation exceeds a certain limit, so that the steam bubbles rise so rapidly as to carry some of the water through which they pass along with them. For this reason, some water-tube boilers are provided with deflecting plates at the upper end of the tubes, without which the water would be thrown in jets from tubes into the steam space.

When the steam as it is generated, has to escape in large masses through very narrow water passages, seperate channels must be provided for the descending water currents, else the meeting of the two currents moving in opposite directions is very apt to result in foaming, or, sometimes, in *lifting the water*. The latter expression means that the steam does not rise as it is generated through the overlying mass of water, but accumulates on the heating surfaces, so that water appears at greater hight in the boiler than would be the case if the steam and water occupied their natural positions.—*From Shock's Steam Boilers.*

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GOSSIP ABOUT MILLERS AND MILLS.

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The Maid of Abbey Mills' Valentine.

A Legend of St. Valentine's Day.

CHAPTER I.

A LAWSUIT AND ITS RESULTS.

Abbey Mills, Fairholm, were in the hands of a family named Draper for many generations, and it had acquired a crust of antiquity so thick as to secure no small measure of respect from that section of the Fairholm population whose organ of veneration for the antique in race, buildings, or institutions was largely developed. The first of the family known in local history held the office of "grinder" in the Abbey Mill early in the fourteenth century. Mention is made of him in the Abbey Chartulary, which was published by a Fairholm Dryasdust by subscription. In this record indeed he does not figure in a very dignified position, as it was that of a demeanant brought before the Lord Abbot for some minor delinquency, for which he had to do suitable penance. The ray of light thus cast upon the first Fairholm Draper we have any knowledge of is too faint to throw any illumination upon the antecedents of the race, but from the same source from which we have derived the small shred or snip of biographical fact mentioned, we learn that he died at a good old age, and that he was succeeded in his office, and the emoluments thereunto pertaining, by his eldest son.

From this tiny source an unbroken stream of Drapers stretch on to the period to which the present history belongs, when it was merged in another current under circumstances which will be shown in the sequel.

Some time prior to the Reformation, the family had become tenants of the mill, and at the Reformation, an event in conection with which a great deal of valuable property changed hands, the tenant for the time being became the owner, with all the privileges enjoyed by the dispossessed owners, as to "grinding corn and malt" in Fairholm parish, upon very easy terms.

The hamlet of Fairholm, which had grown up under the fostering care of the Abbey, became, in course of time, a town of respectable dimensions. Cloth making, weaving and other industries took root in it and flourished; and about the close of the eighteenth century a stranger from the north, who bore the name of Cruickshank, appeared in Fairholm, and, having acquired a piece of ground on the outskirts of the town, about two miles from the Abbey Mills, close by the stream which supplied the motive power for the latter, he commenced to erect a building, keeping his own counsel, however, as to the purpose for which it was intended.

It was generally supposed that it was destined for cloth manufacture, as the stranger, it was known, had acquired the right of usage of the stream already mentioned, but on passing the new erection one morning, Mr. Draper saw, with astonishment and indignation, inscribed in conspicious letters on the front of the building,

FAIRHOLM ENTERPRISE FLOUR MILLS.

With these words branded upon his brain, Mr. Draper went straight to his lawyer for consultation as to the promptest method of ejecting this daring stranger from territory over which the owner of Abbey Mills had inalienable right of "soke." The consequence was the raising of an action which, after running the gauntlet of the local courts, was transferred to the supreme courts in London for final decision. The litigation was long and expensive, ultimately resulting in the non-suiting of the plaintiff, on the gaound that it was proven to the satisfaction of the court that he could not grind a tithe of the corn and the malt required by the parish of Fairholm.

Mr. Draper was not one of these exceptionally meek litigants who, when smitten on the one cheek, offer the other for similar treatment. As an Englishman he was, of course, firmly convinced that the institutions of the country, including those that dispensed justice, were perfect, but there might be perfect institutions, and at the same time very imperfect men connected with their management. The fountain of English justice might be pure and her balance impartial, but the one might be polluted, and the other biassed by wicked men. One thing was certain, he had sustained the greatest possible injary from the machinations of unprincipled adversaries and the prejudices of London judges. The respectable legal practitioner of Fairholm, who acted as his lawyer, had shown him that the defendant Cruickshank "had not a leg to stand upon," and the counsel retained to conduct his case in the London court had made it clear to the meanest understanding, that the intrusion of the defendant into Fairholm parish, as a miller, was a direct and gross infringement upon rights which were conferred by the Crown upon the original proprietor of Abbey Mills, "and his heirs forever." But for all that, on some miserable quibble, that "such rights were forfeited when the person to whom they belonged proved incompetent to their exercise," he had been nonsuited! "A more monstrous miscarriage of justice," to quote the words of the Fairholm *Mercury*, a journal which strongly espoused the cause of Mr. Draper, "had not been known since the days of the Star Chamber."

Mr. Draper, however, was composed of too substantial metal to allow the loss of a lawsuit to paralyse his energies.

Previously to the advent of his rival he had thought of making a considerable addition to his mill, but the thought had been in his mind only as a seed is in the soil, vital, but dormant until influenced by the conditions which result in germination. Had the thought been put into action the result of the lawsuit might have been different, although at that time forces were at work in the country which were disposing the popular mind to a less tender regard for prescriptive rights *per se* than had formerly been the case.

The fact that increase of custom might follow increased means of production would have been a sufficient inducement to most men to make provision for the latter, but in Mr. Draper's case it was not powerful enough to overcome the reluctance he felt to incur the expense involved in the enlargement of his mill. Men, more especially in quite well-to-do provincial towns, were not in the habit in those days of doing things rashly. "Let well alone" was a proverb for which they had a profound respect, and the substantial balance Mr. Draper had with his banker was "a bird in hand," a feather of which he cared not to risk on the chance of securing birds still "in the bush."

But if the prospect of increased gain proved a motive too week to overcome his reluctance to build, the triumph of his rival in the law courts acted as a thoroughly effective spur to his previously half-formed intention. "I have never been worsted before in my life, and I will not accept defeat at the hands of a stranger, and a —— Scotchman to boot, without making an effort to avenge myself." From a high, ethical point of view, the idea of vengeance was, of course, exceedingly reprehensible, but there was a great deal of unregenerate nature in Mr. Draper, and when he received a blow he was never satisfied until he returned it with interest.

Accordingly, the builders were set to work, and while the existing mill, which was as old as the Abbey itself, which stood in a picturesque state of ruin near it, was religously preserved, a new erection speedily arose by its side, which dwarfed into comparative insignificance the "Enterprise Mills" that had been built by Mr. Cruickshank.

Steam, which had been recently introduced as a motive power in corn mills, was had recourse to by Mr. Draper as an auxiliary to the stream which had driven the old mill. The best machinery available at the time for use in the different processes of flour manufacture was secured, regardless of expense, and the task of starving the interloper Cruickshank out of Fairholm was vigorously commenced. To the astonishment, and, it must be added, intensely to the disgust of Mr. Draper, his rival showed no sign of capitulating. The latter even paid him the compliment of imitation, by enlarging his mill and the adopting of steam; and while Mr. Draper's business increased at a greater rate than had been anticipated by that gentleman, even in his most hopeful moods, that of his rival, so far as he was able to ascertain by what he heard on the markets he frequented, was also in a most flourishing condition.

After twenty years unceasing war, a neglected cold, which settled on his lungs, compelled Mr. Draper to exchange the comforts of Abbey Mill House for the dreary retirement of the Abbey churchyard, leaving his rival master of the situation.

CHAPTER II.

A NEW GENERATION.

Sixty years after the events related in last chapter, the Abbey Mills and the Enterprise Mills were in the hands respectively of a Draper and a Cruickshank, grandsons of the principals in that famous lawsuit which originated in the first establishment of the Enterprise Mills. The bitterness of the old feud between the families had died out to a great extent, and when John Draper and Chas. Cruickshank met at markets and other places they exchanged greetings, but there was no great cordiality between them. Fairholm was famed for its neighborly hospitalities, and from time to time the rival millers met at the tables of mutual friends, but Mr. Cruickshank had never been invited to dine at Abbey Mill House, nor had Mr. Draper been asked to share the hospitalities of Lomond Lodge, the residence of Mr. Cruickshank. Not, to do him justice, that the latter had any hostile feeling which prevented his giving to or accepting an invitation from his rival; but as the old feud originated with Mr. Draper's grandfather, and its bitterness was occasioned chiefly by the animus displayed by that gentleman with reference to the founder of the Enterprise Mills, Mr. Cruickshank felt a shyness in making advances to Mr. Draper, which might not be received in the spirit which inspired them. Mr. Draper had an only child, a daughter, whose mother died when she was an infant, and Mr. Cruickshank, also a widower, had an only son.

Maud Draper, who was popularly known as the "Maid of Abbey Mill,,' was in her nineteenth, and Robert Cruickshank in his twentieth year when they are first introduced to the reader. It was universally admitted in the circle in which they moved, that Maud was its brightest and most winsome ornament, and a handsomer or more high-hearted fellow than Robert Cruickshank was not to be found in Fairholm male society. Maud was graceful as a lily, with a complextion in which the lily and the rose were blended. Her hair was brown with a dash of gold in it, and her eyes were dark, opinion being divided as to whether they were a deep blue or a deeper grey. They possessed a charm, however, which, whether they glaced at the beholder through their dark fringe of eye lashes, or looked him straight in the face, had a fascinating effect. Maud and young Cruickshank had met several times at Fairholm parties, and though each was conscious of the existence of some coldness between their fathers, arising from that old lawsuit, they seemed to be of opinion that there was no reason why it should chill the pleasure they derived from these occasional meetings. What happened at Verona when a gallant Montague met a fair Capulet, happened at Fairholm, and the daughter of the house of Draper and the son of the house of Cruickshank were lovers before it was suspected by their fathers that they were the merest acquaintances.

The lovers, aware of the state of feeling that existed between their parents, were of opinion that in all probability it would act as a barrier to the immediate realization of their wishes, but they decided that it was best to know at once what degree of opposition, if opposition there was to be, they were to meet with. Anything like clandestine intercourse was repellant to the nature of both. The relationship that had been formed between them had sprung up as the flowers do—unconscious to themselves, without any thought of circumstances outside the sphere of their own feelings by which such a relationship might be affected. Reason, indeed, might suggested the propriety of an inquiry whether the authors of their being had any objection to the step they had resolved upon, antecedently to the forming of the resolution; but then reason is not invariably present to watch and control the proceedings of lovers, and Robert Cruickshank and Maud Draper plighted their troth without a thought of anything but the subject immediately in hand.

To do them justice, the first thought that occurred to them after this had been done, was what their fathers would think of the step, and Robert undertook the task of ascertaining.

So far as his own father was concerned there was no great difficulty.

"I would have been better pleased had you chosen some one else," he said, "though, so far as the girl is concerned, I have nothing to say, but her father is a stuck-up, disagreeable ass, who has never forgotten that his grandfather was beaten by mine in a lawsuit of his own raising. However if he consents, my boy, I'll raise no objection."

After his interview with his father, Robert proceeded to the Abbey Mill-house and was shown to a room used by Mr. Draper as a private office. He was received by that gentleman, who was entirely ignorant of the object of his visit, with cold politeness. Handing his visitor a chair, he said:—

"I don't think I have had the the pleasure of seeing you here before, Mr. Cruickshank. Is there anything I can do for you?"

The question was a stereotyped form Mr. Draper was in the habit of using when any visitor called with whom he was not on the most cordial terms, and whom he desired to get rid of as soon as possible.

The stiffness of his reception had a somewhat chilling effect upon Robert, but as he was partly prepared for it he resolved to plunge at once into the subject which had taken him to Mr. Mr. Draper's presence.

"I should be very glad to think that you were pleased to see me here, Mr. Draper, and if you are willing, you can do more for me than any one else in the world can do."

There was an earnest ring in the young man's voice which startled Mr. Draper and made him scan the appearance of his visitor with more interest than he had done on his first appearance.

"Indeed," he said, with a chilly smile, "and what, may I ask, without in the meantime saying anything about my willingnes, can I do for you so much more than any one else? At the same time permit me to say that, presuming you are aware of the relations that have existed so long between your family and mine, I am somewhat surprised you thought of applying to me for anything which seems to you of so much importance."

"Suppose I were to ask you to do something which would be the means of improving the relationship to which you have alluded, and which for my own part I have always regretted, what would be your answer? Surely there is no reason why disagreeable feelings should exist between neighbors forever because two people quarrelled more than half a century ago," replied the young man earnestly.

"Has Mr. Cruickshank sent you as an ambassador to negotiate terms of amity between himself and me? If so, I would rather defer the consideration of the subject to some future time, as I am rather busy this morning," said Mr. Draper, rising, as a hint, that he desired the termination of the interview.

"I am not here in any capacity from my father, who, I am sure, has no ill-feeling with regard to yourself," said Robert, also rising; "the object of my visit is entirely personal, although it has the knowledge and approval of my father. I will not trespass upon your time many minutes, but," and the young man hesitated a moment, at the same time glancing at the well-worn carpet which covered the floor of Mr. Draper's office, "I deemed it," he continued, "my duty to inform you of the sentiments I entertain with regard to Miss Draper——"

"My daughter!" exclaimed Mr. Draper, clutching the back of a chair. "What right have you to mention her name?"

"The right that love gives to a man to mention the name of the woman who is dearer to him than his own life," was the reply.

Mr. Draper turned purple with rage, and it was several minutes before he could command himself sufficiently to speak.

"And have you dared to address my daughter as a lover?" he exclaimed at last, glaring upon the young man as if he could have annihilated him where he stood; and Robert having signified his assent, the floodgates of Mr. Draper's rage burst open, and poured forth a torrent of invective against his visitor and all belonging to him, which required all Robert's philosophy, tempered by love, to bear.

At length the torrent exhausted itself, and Robert departed, not certainly in the most Christian frame of mind with regard to the father of his love, although he had contrived to bear his abuse without resenting it.

All that remained of the ruins of the Abbey stood in the Mill-house grounds, and in leaving the latter Robert had to pass a corner of the ruins which was heavily draped with ivy.

"What a towering rage he was in," the young man was thinking, as, with knitted brows and his eyes fixed upon the footpath, he was hurrying along the latter. "What will Maud say when she knows of the reception I have had?" He had reached the ivy before mentioned as he thought this, and on looking up, as if in answer to his thought, he saw Maud in all her beauty standing before him.

"My darling!" he cried, taking her hands in his own, the dark cloud passing from his face in the sunshine of her presence, all the more precious because it had not been expected.

"What did he say, Robert?" inquired Maud, in a low tremulous voice, which betokened the deep interest with which she anticipated the answer.

"Say!" he replied, putting his arm around her waist, and pressing her form to his side,

what I would not repeat in your ears for worlds. We have a trial before us, my love, but time and constancy will triumph in the end."

"Maud, dear!" called a voice, the owner of which was unseen by the lovers.

"There's nurse calling me, I must run," said Maud in a whisper, "my father no doubt has asked for me,"

"Good-bye for the present, then," said Robert; "and remember we are pledged to each other, and that unless we wish it, no power on earth can part us.

"I'll remember," was the reply; "and although papa may be angry at first, he will come round; he never could refuse me anything."

"Maudie, dear!" repeated the voice.

"There she is again, close by us," said the young lady. "I must go and—take this," she continued, plucking a rose from a bush that grew on the Abbey wall, "as a renewed pledge of my constancy."

He took the rose from her hand and kissed it, and folding herself in his arms, he kissed her, greatly to the astonishment of a respectable-looking old lady who made her appearance at the moment (the owner of the voice the lovers had heard), and who, having been Maud's nurse, was now the housekeeper at Abbey Mills-house.

"Maud! Miss Draper! Gracious goodness! what does this mean?" exclaimed the old lady, staring at the lovers in a state of utter bewilderment.

"Never mind, nurse, dear, I'll tell you all bout it. Does papa want me?"

"Yes, my dear, and a pretty temper he appears to be in," replied the nurse, looking after the retreating form of Robert. "But who may he be? He looked like young Cruickshank, so far as I could make out, but my eyes are not so sharp as they once were, and the sun was in them."

"It is Mr. Cruickshank, dear nurse," replied Maud, kissing the old lady, and, putting her arm around her waist, she turned into a path which led to a side entrance to the house, and by the time they had reahed it, Maud had secured a loyal ally for her lover and herself.

For a few weeks after this the course of true love did not run smooth with Maud and her lover.

Mr. Draper's objection to Robert was not altogether in consequence of the unpleasant relationship that had so long existed between the families. He had no son to succeed him in the business, and he had fixed his mind on a match between the son of a cousin of his own and his daughter, in order to preserve the family name with the ownership of of the Abbey Mills.

Ultimately, however, Mr. Draper was forced to submit to circumstances so far, that if at the end of a year from a certain date no change took place in the feelings of his daughter and her lover, he would consider the question whether their wishes might be gratified. Before this ultimatum was reached there were many meetings between the fathers of the young people, which were trying to the temper of both; but the strain, though great, fortunately never resulted in absolute rupture. The year of probation was to be spent by young Cruickshank in a visit to the mills of Austria and Hungary, and a tour through the wheat regions of the United States, and an inspection of the milling system of that country He desired to have unfettered liberty of correspondence with Maud during his absence, but the largest concession Mr Draper. would make on that point was a letter once a month.

(To be concluded in our next.)

[Correspondence.]

From Fisherburg, Indiana.

Editor United States Miller:

Messrs. Woodward & Bro. have a very neat 4-run New Process mill here, and are about adding some rolls. J. H. Crane, of Noblesville, Ind., will do the millwright work.

The growing wheat crop looks badly, and the prospects are that we will not have over a half crop this year. The plant did not get a good start last Fall before the winter set in, and we have had so much sleet and ice that the wheat looks almost as if burnt out. Fultz wheat is raised here almost exclusively.

I would like to ask a few questions through the UNITED STATES MILLER, which I hope some of my brother chips will be kind enough to answer in the same way. *First:* Why does bread dry out so quickly? *Second:* Should Fultz wheat be ground *closer* than Red wheat? and if so, Why? *Third:* Which is the best No. of cloth to dust middlings on, where only two 20-foot reels are used for flour, with return and dusting reels, and a scalping reel?

Hoping to see an answer to the above questions in your April number, I am,

Yours truly, W. C. A.

NEWS.

EVERYBODY READS THIS.

ITEMS GATHERED FROM CORRESPONDENTS, TELEGRAMS AND EXCHANGES.

St. Peter, Minn., is to have a 6-run custom mill soon.

BURNED.—Jan. 29th Harker's grist mill at St. Peters, Minn.

The Conway Mill Co. are building a 4-run mill at Conway, Ia.

BURNED.—Berris' steam flour mill at Marshall, Ia. Insurance $5000.

C. F. Miller, mill furnisher, of Mansfield, Ohio, reports business lively.

Minnesota will soon have a Millers' and Manufacturers' Mutual Insurance Co.

Geo. F. Strait & Co., of Shakopee, Minn., are changing their mill into a roller mill.

BURNED.—Sept. 12th Langbridge & Martin's flour mill at Muscatine, Ia. Loss, $12,000.

BURNED.—Feb. 10th, the Willow mills at Marion, Ohio. Loss $6000. Partially insured.

DIED.—J. S. Wright of the firm of J. S. Wright & Co., miller, Blue Rapids, Kansas.

A new four-run steam flouring mill is being built at Perry, Kan., by William Leach, Esq.

The Riverside Mill at Sunrise, Minn., is about to start up again. S. A. Kost will manage it.

Eau Claire, Wis., is to have two new flouring mills this year. The flour business will boom in Eau Claire.

Mr. H. Ross formerly of Winfield, Iowa, has recently purchased a half interest in the flour mill at Kossuth, Iowa.

BURNED.—Jan. 31, J. Lindsays warehouse at Orangeville, Ont. Loss $30,000. Caused supposed to be incendiarism.

BURNED.—Feb. 12th, Langridge & Martins mill at Muscatine, Iowa. Loss estimated $16,000. Insurance about $5,000.

Messrs. Camp & Randall of Allentown, Pa., are making extensive improvements and are putting in some Steven's roller mills.

H. A. Burns of Moorland, Minn, will make large additions of Hungarian milling machinery to his mill and increase its capacity.

BURNED.—Jan. 30th W. Trow & Co's. mill at Madison, Ind., was completely destroyed by fire. Fully insured. Mill will be rebuilt at once.

BURNED.—Jan. 30th Ephram Seiger's flour mill at Allentown, Pa., was destroyed by fire. It is supposed to have been fired by an incendiary.

BURNED.—Jan. 24, D. W. Balls flour mill at Bath, Canada. The mill contained 4000 bushels of grain. Insurance $1,100. Loss not stated.

A grain elevator with a capacity of 600,000 bushels is to be erected at Omaha, Neb., and is to be completed in time to receive the crop of 1881.

A farmer living 6 miles from Nevada, Iowa, recently hauled a load containing 158 bushels of corn in the ear to town with a single span of mules.

Nordyke & Marmon Co., of Indianapolis, Ind., have orders for a carload of portable mills to be shipped to South America via New York steamer.

A large number of oil wells are being bored in the vicinity of Lake Ainslie, Cape Breton. The oil is a heavy lubricating oil and will meet with a good demand.

Henry W. Short has purchased the flouring mill at Kellogg, Jasper Co., Iowa, of Mr. Brown and will make many improvements during the coming summer.

The Minneapolis Millers' Association have *not* established new grades of wheat as has been published in many papers but offer a premium for pure "Fyfe wheat."

Col. W. L. Parsons, of Neosho Falls, Kan., has contracted with Nordyke & Marmon Co., of Indianapolis, Ind., for a three-run new process water power flouring mill.

Solomon Keister, of Broad Ford, Pa., is remodeling his mill and adding an engine and other improvements. Nordyke & Marmon Co., of Indianapolis, Ind., furnish all the new work.

FATAL ACCIDENT.—Wm. White, a lad 17 years of age, recently got his clothing caught in some machinery in Kidder Bros.' mill at Terre Haute, Ind., and was thereby instantly killed.

Wm. Richmond of Lockport, N. Y., has turned his business over to the new Richmond Manufacturing Co., of which he is President. Mr. McLean is a stockholder and officer of the new corporation.

The Denver News places the product of bullion of Colorado for 1880 at $22,550,000, and the Salt Lake Tribune says that Utah produced in the same year $4,161,923 in silver and $160,400 in gold.

The new process flouring mill near Seymour, Ind., is now about ready to start up. The owners are the Courtland Milling Co., and the machinery was furnished and set up by Nordyke & Marmon Co., of Indianapolis, Ind.

Charles F. Funda, of the firm of Funda & Clark, the largest millers of Little Falls, N. Y., has absconded. He is alleged to be a forger of probably over $50,000. Private parties, banks and firms have been made victims by the forgery of indorsements and notes.

Messrs. Mandee & Smith, of Grafton, Ohio, seem determined to have their mill complete in every department, having lately added a centrifugal corn sheller, three Eureka coil springs, three new mill curbs with silent feeders, and others materials, supplied by C. F. Miller, of Mansfield, Ohio.

The Duplex Safety Boiler Co. of Chicago have just sold the M. S. Fresh & Sons Flour Mills, Attica, N. Y., a 100 H. P. Duplex Safety Boiler. This is a new departure from the established rule which indicates the rapidly growing importance of the Western manufacturing interests. We trust they and others will follow up this example shortly.

Capt. Frazee, of Frazee City, Dakota, has awarded the contract for building a large roller flour mill to Messrs. Hulbert & Paige, mill-builders of Painesville, Ohio. Mr. H. Walters, the well known millwright, is the resident representative of Hulbert & Paige at Fargo, Dakota. The mill will be completed in time to grind its share of the crop for 1881.

Dawson & Taylor, of Cardington, Ohio, have recently purchased a roller mill, one side corrugated for cleaning bran and the other side smooth for second middlings and tailings, also packer, purifiers, belting and much other material to put it in first class order for making good flour. The machinery was furnished and put in under the supervision of C. F. Miller, of Mansfield, O. The mill is running to its full capacity.

The leading manufactory of the village of Moorhead, Clay Co., Minn., is the Moorhead Mills, with a capacity of 150 barrels flour every twenty-four hours, where the famous "Belle of Moorhead," "Rising Sun," and several other popular brands of flour are manufactured, besides a large amount of bran and feed; the product of these mills finds its way from Montana to Germany, Russia and other foreign countries by way of rail and lake and sea navigation.

An accident, damaging in its result, occurred at the Hinckley Mills in Belleville, Ill., Feb. 18th, caused by the breaking of the crosshead of the powerful Harris-Corliss engine, which runs the mill machinery. The cylinder head of the engine was knocked out by the piston with such force as to cause the heavy piece of metal to fly some ten or twelve feet, where it came in contact with a "doctor." This latter was completely disabled, being broken in several of its parts. Behind the "doctor" stood a stove, in front of which were seated John Klein and Henry Haman, two employes. Klein was in almost direct line with the cylinder, and would have been killed if the "doctor" had not been where it was. The engineer, Mr. John McCully, was oiling the engine at the time of the accident, and was in a position so that he could shut off the steam, thus lessening the danger from inhaling the hot steam, with which the room became almost instantly filled. The engine was comparatively new, having been in use about four years, and was considered one of the most perfect of its kind out of the three now in use in Belleville. The damage to the engine and "doctor" is estimated at between $1,200 and $1,500 to say nothing of the loss of time by waiting for repairs.

IT is generally conceded that previous estimates of the surplus wheat of the crop of 1880 have been too high. I. E. Beerbohm, the English statistician, in his latest figures places the requirements of—

The United Kingdom at	124,000,000	Bushels.
France	44,000,000	"
Belgium	12,000,000	"
Germany	16,000,000	"
Holland	6,000,000	"
Switzerland	12,000,000	"
Italy	8,000,000	"
Spain and Portugal	6,000,000	"
West Indies	16,000,000	"
Or at a total of	240,000,000	Bushels.

Against the surplus in—

The United States and Canada	196,000,000	Bushels.
Austria and Hungary	8,000,000	"
Russia and the Danube	20,000,000	"
Algeria	3,000,000	"
Egypt	4,000,000	"
Australia, China and India	24,000,000	"
Total	254,000,000	Bushels.

This shows a surplus of only 10,000,000.

Grain and Flour Trade Notes.

THE grain and flour trade are reported extremely dull at Pesth, Hungary.

6,545,920 barrels of flour were exported during 1880 valued at $38,141,723.

THE latest figures place the amoun t of wheat available for export in California at 22,000,000 centals.

THE increase in the manufacture of flour in the Northwest has decreased the wheat receipts at Milwaukee and Chicago about 35 per cent.

THE highest price paid for No. 2 spring wheat in Milwaukee in 1880 was in January, $1.32½; the lowest in June, $0.86½. The average price was $1.05½.

THE floods have done great damage in England and the weather has been unusually cold. Dry samples of native grain are reported scarce and command full prices.

EUROPEAN millers and dealers have of late bought very sparingly, only enough to meet present demands and heavy supplies will be needed before this year's crop is harvested.

THE estimated amount of foreign wheat required in France from Aug. 1, 1880, to July 31, 1881, are put at 45,000,000 bushels. The imports already received to December 31, 1880, were 27,000,000, showing a requirement between now and harvest of 18,000,000 bushels more.

THE total amount of breadstuffs exported during January, 1881, were valued at $14,939,406, against $14,632,882 in January, 1880. The exports during January, 1881, of wheat-flour were 749,441 barrels, and of wheat 8,220,390 bushels. During January, 1880, the exports of wheat-flour were 422.302 barrels, and of wheat $5,828,429. These figures are taken direct from official sources.

WHILST America has been increasing her flour trade, that of Austria-Hungary, has been largely diminishing; in fact, during the 11 months ended Nov. 31st, 1880, only 1,256,737 qntls of 220lb were exported, being 988,908 qntls less than in 1879. The decrease is particularly apparent in the quantity taken for Germany, American flour having largely supplanted Austro-Hungarian in that country, and to a certain extent also in Switzerland.

AMERICAN farmers have of late years been so accustomed to receiving high prices for their wheat and are generally in such comfortable circumstances that they will not crowd their wheat on the market if the prices do not suit them. The reported injury to the winter wheat by the extreme cold weather and occasional thaws tends also to make the farmers contented to hold on to their crop until they can better determine later in the season what the harvest will be.

A PROMINENT dealer in Chicago writes us as follows: While there are not those wanting who maintain that wheat is too high and must sell lower in the near future, the characteristics of the market for some time past have been such as to lead to the conclusion that strong parties are and have been buying on every decline preparatory to the inauguration of another bull-movement as culminated last December, and the reasons which could support such a movement seem to grow stronger and more plausible.

FEBRUARY 21.—One thousand cars of No. 2 mixed corn, equal to about 1,000,000 bushels, which have been standing on the track in East St. Louis for some time past, were sold for shipment to Baltimore. The price paid was 39 cents, which is above the ruling figure, but it is understood the corn will go forward at a cut rate, but exactly what the reduction is has not transpired. The shipment will greatly relieve the overburdened railroad tracks on the other side of the river and make room for an equal number of cars.

About 60,000 bushels of wheat were shipped by barges to New Orleans, on same date, on foreign account, and 25,000 bushels of rye were withdrawn from the elevator to-day for European shipment, via New Orleans.

THE GERMAN FLOUR EXPORT TRADE.—As we have already stated in these columns, the effect of the new German customs regulations, have been so disastrous to the millers of the Rhenish provinces and Westphalia, that the flour export from those countries has nearly ceased altogether, and millers generally are considerably reducing their production. The Prussian Finance Minister having instituted an inquiry into the cause of this decline, has received a reply from the Millers' Association, signed by Herr Jos. J. Van den Wyngaert, in which the impossibility of maintaining a successful export trade in flour is very clearly demonstrated. This document states that the German millers use in the maufacture of flour, a mixture consisting of 20 per cent of foreign wheat, and 80 per cent of inland growth. Before the introduction of the new tariff, about ⅓ of the total production was exported, and ⅔ were supplied to the home consumers. But it is impossible for them to grind the foreign wheat used, alone for export, and German wheat for home use. The mixture is indispensable, and as they have to pay duties on the imports of foreign wheat, they are entitled to the re-imbursement of the duty on the percentage of foreign wheat contained in the exported flour. By the present regulations they cannot obtain this because their flour is made of mixed wheat, and the consequence is the complete prostration of the German flour export trade. —*Corn Trade Journal (London).*

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C. O. D. Mill Furnishers,

No. 63 Lake St., CHICAGO, ILL.

Catlin's Octagon Bucket.

BEST MILL BUCKET IN THE WORLD.

The ends of these buckets are fastened by a double fold. The bands double lap the ends, leaving the front of the bucket smooth. If you have not used them, please give them a trial.

TIN.				IRON.			
2½x2½	5 Cents	4 x3	8 Cents	5 x3½	11 Cents	6x4½	15 Cents
3 x2½	5½ "	4 x3½	9 "	5 x4	12 "	7x4½	16 "
3 x3	6 "	4½x3½	10 "	5½x4	13 "	8x5	18 "
3½x3	7 "			6 x4	14 "	9x5	20 "

SPECIAL FIGURES ON LARGE QUANTITIES. SAMPLES FREE.

Odd sizes made to order. A large stock of "Octagon" Mill Buckets always on hand.

UNSOLICITED TESTIMONIALS.

I received my "Octagon" cups to-day. Am *well pleased.* J. M. BURKHOLDER, Casstown Mills, O.

The "Octagon" buckets you sent us have just arrived. We are *fully pleased.* They are *strong* and *durable*—the *very kind we want*—and at *one third the cost* of as good an article here. JAS. CAMP, Fort Jones, Cal.

Your "Octagon" cups meet *the approbation of all millers.* They have been paying *double your price* for an inferior article. WM. A. McMULLEN
Traveling Salesman.

We have been buying our buckets of ——but we *like the looks of your "Octagon."* Please send us the following—— HARDESTY BROS., Canal Dover, O.

The "Octagon" buckets came to hand and *look equal to sample sent* us before ordering.
UNION MILLS FLOURING CO., Van Wert, O.

Please find enclosed draft for the "Octagon" buckets ordered on the 16th inst. *They do their work nicely,* and we are *well pleased* with them.
STRAUS, ELSTON CO., Marietta, O.

"Octagon" buckets ordered the 14th and billed the 18th, just received. We are *well pleased* with them and *will order another supply* ere long.
MITCHELL & BROWN, South Toledo, O.

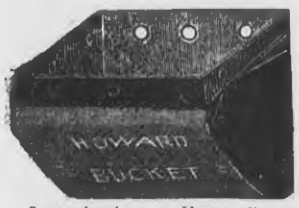
We received your "Octagon" elevator bucket, and *like it very well.* Send us——
MOON & BLACK, Diana, Ill.

We *like the form* of your "Octagon" cups *better* than *any other, so does* our *millwright.*
J. SHOUTZ & SON, Bloomville, O.

We received your "Octagon" which we think is a *real good cup.* Please send us the following——
H. J. SOMMER & BRO., Canton, O.

Enclosed find draft——for "Octagon" cups ordered last week. They *are all right.*
T. W. STANTON & SON, Waupun, Wis.

We got *some* "Octagon" buckets *of you last year,* and now we want *some more.* Please ship us as follows——
HOOD & BRADLEY, Belmont, N. Y.



Catlin's Howard Bucket.

This bucket is made entirely of one piece of metal. It is octagon shape, very smooth, neat and extra strong. They are acknowledged to be the most perfect warehouse bucket made.

I received the "Howard" bucket from your firm. *I like the shape* and *manufacture* of them *first rate.* When I built I had *my buckets made to order, but they were much inferior to yours* and *cost more money.*
H. W. HOAG, Delevan Steam Grain Elevator,
Delevan, Wis.

Quite a number of parties to whom we have furnished plans for elevators, are using the *"Howard" bucket: they are well liked.*
CHASE ELEVATOR CO.,
Chicago, Ill.

We also manufacture to order *four* other styles of Elevator Buckets, and can make it to your interest to correspond with us when wanting *buckets for any purpose.*

MILL PICKS.

60 cents per lb.....Discount.....per ct.

WOOD CONVEYOR FLIGHTS.

75 cents per 100.....Discount.....per ct.

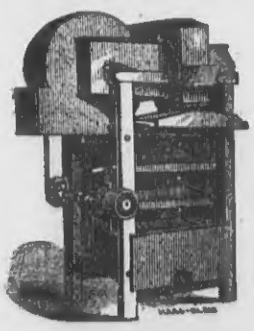
ELEVATOR BOLTS.

85 cents per 100.....Discount.....per ct.

Order from this advertisement, and if the goods and prices are not satisfactory they can be returned at our expense.

WM. E. CATLIN & CO.

Please mention the U. S. Miller when you write us. **63 Lake St., Chicago, Ill.**



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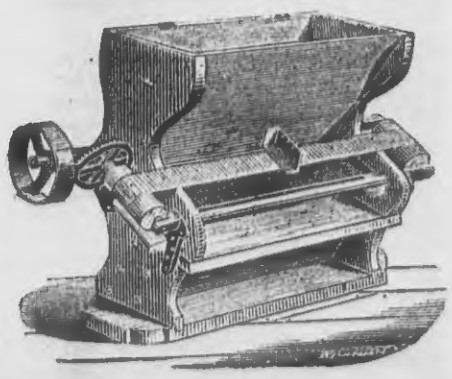
LATE HOWES, BABCOCK & CO.,

Silver Creek. - New York.



No. 16 Mark Lane, London, Eng.

THOS. TYSON, Melbourne, Victoria,
General Agent for the Australian Colonies and New Zealand.

Sole proprietors and manufacturers of EUREKA Wheat Cleaning Machinery, consisting of "Smut Machines" "Brush Machines," Separators for mills and warehouses, and Flour Packers

Also the Magnetic Separator for removing substances from grain automatically, and dealers in the genuine Dufour & Co. and Dutch Anker brands Bolting Cloth, and mill furnishings generally

Send for circulars and price lists. Addresses above

[Mention this paper when you write us.]

The Duplex Safety Boiler.

This boiler cannot explode. Gives most steam for least money, and its durability is established by three years' service without repairs.

Engineers and steam users are invited to send for descriptive circulars.

Duplex Safety Boiler Co.,

34 Cortland St., New York.

52 South Canal St., Chicago, Ill.

Please mention this paper when you write us.

A Hungarian Head Miller.

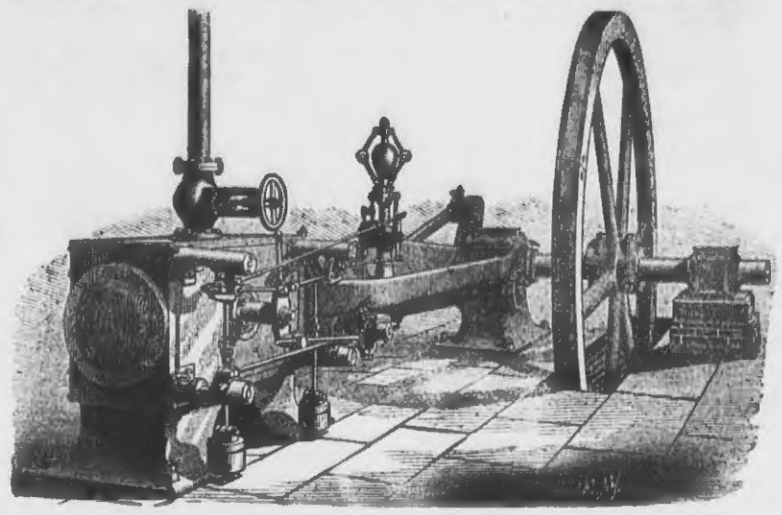
Having for many years had experience as head miller in Buda-Pesth, Hungary, desires to open correspondence with some American milling firm, with a view to locating in America. Address all letters as below, and they will be duly forwarded to me. Please state what wages could be expected in case entire satisfaction is given
HUNGARIAN MILLER,
Care of United States Miller. Milwaukee, Wis.

Mill Property For Sale.

Flour Mill, Saw Mill, Planer and Circular Saw Mills, located on bank of Ohio River, 400 feet from depot of C. & P. R. R., 35 miles below Pittsburgh, Pa., in a good business location and grain growing neighborhood. Good shipping facilities by river and rail. Mills, engine and all machinery in good running order. Will be sold low for cash or exchange for farm. Also large commodious dwelling house. Address J. W. ENGLE,
Industry, Beaver Co., Pa.

ATLAS-CORLISS ENGINE

Will Replace Ordinary Engines, Guaranteeing to Save One-Third Fuel.



Write for Engine Pamphlet.

ATLAS ENGINE WORKS, INDIANAPOLIS, INDIANA.

Builders of All Classes of

Engines and Boilers.

We build **The Best Farm Engines and Small Engines** for Warehouses and Elevators. Janly

[Mention this paper when you write us.]

DICKINSON'S PIONEER MILL-STONE DRESSER

Simple, Effective and Durable.

Price, with two large Diamonds.....$50.00.

The undisputed success of the above machine by the universal satisfaction it has given has brought into existence numerous others of the like in principle, all having their respective advantages, and the subscriber is now furnishing Diamonds for all the Mill-Stone Dressing Machines in the market, with numerous cutting edges, at $2 each and upwards. Diamonds sharpened. Send money with orders to

[Mention this paper when you write us.] **J. DICKINSON, 64 Nassau St., New York.**

"THE GREAT ROCK ISLAND ROUTE"

Calls your attention to the following REASONS WHY, if about to make a Journey to the GREAT WEST, you should travel over it:

As nearly absolute safety as is possible to be attained. Sure connections in UNION DEPOTS, at all important points. No change of cars between CHICAGO, KANSAS CITY, LEAVENWORTH, ATCHISON or COUNCIL BLUFFS. Quick journeys because carried on Fast Express Trains. Day cars that are not only artistically decorated, but furnished with seats that admit of ease and comfort. Sleeping cars that permit quiet rest in home-like beds. Dining cars that are used only for eating purposes, and in which the best of meals are served for the reasonable sum of seventy-five cents each. A journey that furnishes the finest views of the fertile farms and pretty cities of Illinois, Iowa and Missouri, and is afterwards remembered as one of the pleasant incidents of life. You arrive at destination rested, not weary; clean, not dirty; calm, not angry. In brief, you get the maximum of comfort at a minimum of cost.

That the unremitting care of the Chicago, Rock Island & Pacific Railway for the comfort of its patrons is appreciated, is attested by its constantly increasing business, and the fact that it is the favorite route with delegates and visitors to the great assemblages, political, religious, educational and benevolent, that assemble from time to time in the great cities of the United States, as well as tourists who seek the pleasantest lines of travel while *en route* to behold the wonderful scenes of Colorado, the Yellowstone and Yosemite. To accommodate those who desire to visit Colorado for health, pleasure or business, in the most auspicious time of the year, the Summer season and months of September and October, the Company every year puts on sale, May 1st, at all coupon ticket offices in the United States and Canadas, round trip tickets to

DENVER, COLORADO SPRINGS AND PUEBLO,

At reduced rates, good returning, until October 31st. Also to San Francisco, for parties of ten or more, good for ninety days, at great reduction from regular fares.

REMEMBER, this is the most direct route for all points WEST and SOUTHWEST. For further information, time-tables, maps or folders, call upon or address

R. R. CABLE,
Vice-Pres't and Gen'l Man'gr, Chicago.

E. ST. JOHN,
Gen'l Ticket and Pass'r Agent, Chicago.

[Mention this paper when you write us.]

Nickle FLOUR TESTERS mailed for 25c.

THE

KING OF SAW MACHINES

Price $9.00.

$1000.00 IN CASH is deposited in bank against any other saw machine in America. This is the cheapest machine made, and warranted to saw logs easier and faster than any other. We are the oldest saw machine firm in America. Any prominent merchant will tell you we are responsible.

Beware of infringements. Our circulars are free. Address,
United States Manufacturing Co., Chicago, Ill.

Our **WELL AUGERS** will bore a well 75 feet deep and 2 feet in diameter in a day. This would clear you $50 in a day. Send for our Pictorial Catalogue.
U. S. MANF'G CO., Chicago, Ill.

[Mention this paper when you write us.]

2 RUNS OF FIRST-CLASS

MILL-STONES

FOR SALE.

For wheat grinding. In perfect order with spindle, tram pot, fulcrum, curb, lighter screw and silent feeder. Will sell one or both runs at a very low price, delivered on board cars in Janesville. Address at once.

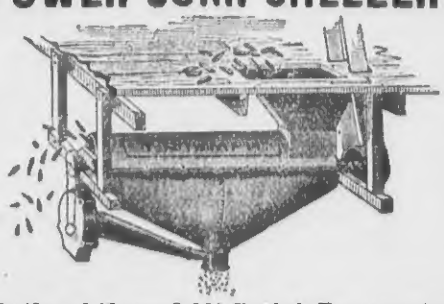
NOTBOHM BROS.,
JANESVILLE, WIS.

Mention this paper when you write us.

Mill For Sale—A Rare Bargain.

Desiring to turn my full attention to other business I offer for sale my Mill Property in Ripon, Wis. The mill is 40x60 and four stories high with additions 44x44 and 20x40, and cooper shop. Power: 13 feet head, 3 13-inch turbines, also 75 horse power engine with two boilers. Has 2 wheat stones, one middlings and a feed run, 2 purifiers, flour packer, separator, smutter, corn sheller, etc. Handsome dwelling house can be had with the mill. It has all conveniences and modern improvements. Good schools and college in the city. Any one desiring to go into the milling business, should not fail to examine this property. When you write me please mention the *United States Miller.* Address
H. B. BATEMAN, Ripon, Wis.

TRIUMPH POWER CORN SHELLER!



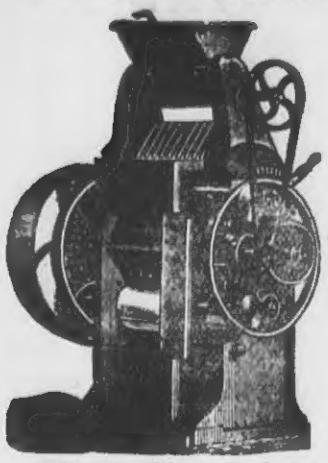
Shells and Cleans 2,000 Bushels Ears per day.

The Cheapest, Best and most Simple Power Corn Sheller in use. Send for Circular and Price List.
HULBERT & PAIGE,
oct Janesville, Ohio.

[Mention this paper when you write us.]

[Mention this paper when you write us.]

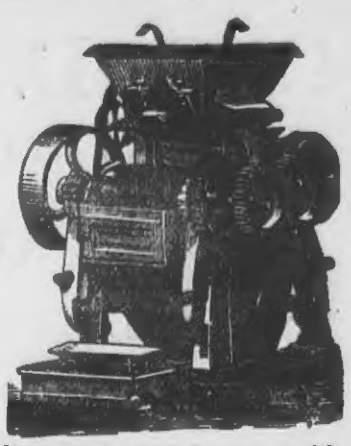
VIENNA EXHIBITION. 1873, Awarded Diploma of Honor. **PARIS EXHIBITION, 1878, Awarded 2 Gold Medals and 1 Silver Medal.**



GANZ & CO.,

Iron Foundry and Manufacturing Association,

Buda-Pesth, Hungary; or Ratibor, Germany.



We take this method of recommending to the American milling public our PATENT ROLLER MILLS *with chilled cast iron rollers*, for crushing and grinding wheat, which have met with such eminent success in Europe. The mill-owners of BUDA-PESTH, as well as the prominent millers of Austro-Hungary, and a large number in Southern Germany, Switzerland and England, have provided for their mills the celebrated GANZ ROLLER MILLS, which are about to supplant entirely *grinding on mill-stones*, their working being more perfect, producing more white flour, requiring less power than the best mill-stone, and wanting no repairs excepting to occasionally replace a bearing. We have introduced into the art of milling these *Roller Mills with chilled cast iron rollers*, and from 1874 to January, 1879, we have delivered in the different European countries, Africa and the United States of America about 2,100 mills, and all work satisfactorily. Our crushing mills may now be regarded as absolutely necessary for every well-furnished modern mill, and this is proven by the numerous testimonials at hand. Our grinding mills are remarkable for their *absolute discharge bearings*, by means of the newly-devised *Anti-Friction Pressure Rings*. These Rings allow a very high pressure, and hence assure the performance of a great deal of work, avoiding all waste of power caused in other machines by friction in the bearings.

Out of numerous testimonials at hand we select the following:

BUDA-PESTH, March 28, 1878.—To Messrs. Ganz & Co., Foundry and Engineering Co., Limited, Buda-Pesth: Complying with your request to communicate to you my experience with your Roller material, I have pleasure in stating that I consider it, *i. e.*, your generally well-famed chilled iron, as the best within my experience, and its adoption *has satisfied me in every respect*, so that I do not hesitate to assert, by introducing it on a large scale, you have rendered *a considerable service to the milling art*. Your material is equally well adapted for *rough grinding, softening or grinding*. Owing to its great hardness I cannot characterize it otherwise than indestructible. The grooved cracking rollers have demonstrated this hardness, as also a toughness, of your castings in a manner which astonishes all who know the rapid wear of cutting edges used in the treatment of grain. Your smooth rollers, once properly ground, preserve their complete cylindrical form, and do not require any repairs for a period which even now cannot be estimated. They acquire, soon after being put to work, a finely-gritted surface texture, eminently adapted for grinding as well as for drawing down the meal, a condition which they preserve without change. It is quite superfluous to prove that there can *be absolutely no question of discoloring* unless with reference to new rollers, to which some remnants of oil, emery or other matter may yet adhere. The flour produced by your Chilled-Iron Rollers *is very lively and has remarkable baking qualities*. While stating the above to the best of my conviction in answer to your inquiy, I seize with pleasure this opportunity to express to you my thorough approbation, *not* only of your roller material, but also generally of your roller mill construction. Your rough grinding (cracking) with chilled-iron roller mills constitutes such an essential step in advance as compared to the rough grinding with stones, that they cannot fail to win their way into every well-built mill, working on the high or half-high grinding system. For the purposes of reduction to flour you have lately erected a form of mill which I consider extraordinarily successful. You have by the introduction of an entirely new mechanical organ, *i. e.*, the *Rotary Anti-friction Spring Pressure Ring*, solved the problem of *discharged bearings*, which has so often been raised and as often dropped again unanswered. You have achieved success with decided aptitude in a manner as wondrous as it is simple and practical. This Roller Mill absorbs, in fact, only just the power required for the reduction into flour, and none for bearing friction which, usually, as is well known, amounts to a high figure. This Flour Mill receives an agreeable and light form while attaining a capacity hitherto unknown. In handing you the above communication for use as you may deem desirable, I remain, etc.,

(Signed) C. HAGGENMACHER, Director of the First Ofen.Pesth Steam Mills.

TIVOLI KUNSTMUEHLE, Munich, April 5, 1878.—To Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: In reply to your esteemed of March 28, we have pleasure in testifying to our satisfaction with the Chilled-Iron Rollers supplied to us by you. We have now had both smooth and fluted Rollers in use for the last two years, and have not found any appreciable wear in the smooth rollers. With reference to the work and capacity we can but report favorably. The flour produced by them is lively, and not killed as has been stated in some quarters, while its baking properties are first rate. Referring to the lately supplied fluted rollers, Mechwart's patent, grooved on the new method, they work admirably and are especially to be recommended for mellow wheats. Recapitulating, your Roller material is as tough as it is hard, and therefore in every way adapted for the purpose it is intended. We remain,

Tivoli Kunstmuehle, A. MUELLER.

BUDA-PESTH, July 16, 1877.—Messrs. Ganz & Co., Buda-Pesth—Gentlemen: The most satisfactory results which, on testing the different Wheat-breaking Machines, we obtained from your Fluted Rollers, induced us to adopt your system and, in consequence, we already provided our mill with a great number of your Breaking-Rollers. In consideration of the experience derived from use of these Rollers we beg to point out as particular advantages of your *Wheat-breaking System* that *extremely little flour is produced*, provided the rollers are used as directed, that *your Rollers most satisfactorily detach the Semolina from the Bran, and thoroughly separate the Germ Particles*, and finally that they are *of an astonishing durability*, and that it requires no skilled labor to manage them. Morever it must be stated that your system suits perfectly well any process of Breaking-Wheat. It affords us so much more pleasure to give you the above account, as we are inclined to think that by the construction of these Rolls you have achieved an essential progress in the milling industry. Yours truly,

PESTHER WALZMUEHL-GESELSCHAFT. Riedle, m. p. Burchart, m. p.

BUDA-PESTH, July 11, 1878.—Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs, Having had occasion to try your newly patented Roller mills *with others, known until now*, I feel induced, regarding their excellent qualities to give orders for furnishing me the Roller mills to be erected in my two mills. These roller mills are to be recommended by their construction, *surpassing all known* until now, and especially for their remarkable capacity, doing much work with little power. Believe us, gentlemen, Yours truly, HEINR. HAGGENMACHER.

BRANDERS A. ADLER, Bohemia, February 13, 1879.—Messrs. Ganz & Co., Buda-Pesth—Gents: I give you my best thanks for your delivering to me your well-made and well-working machines, as well as for those 2 machines you delivered me last year. I have no objection to your publishing this. Yours faithfully,

G. HANNAK, Civil Engineer and Mill-owner.

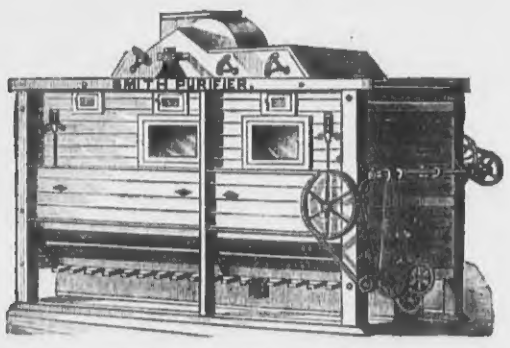
Address all communications to

GANZ & CO., Buda-Pesth, Hungary.

Cable Address "GANZ, Kaiserbad." **Or GANZ & CO., Ratibor, Germany.**

Or THROOP GRAIN CLEANER CO., Auburn, New York.

[Mention this paper when you write us.]



SIMPLE, DURABLE, ECONOMICAL. *Cheaper* than any other of EQUAL CAPACITY. *Licensed* under all patents owned by Consolidated Middlings Purifier Co. Eight sizes single and three sizes double machines.

THE LOCKWOOD MEDAL, "Awarded to the Geo. T. Smith Middlings Purifier, as the machine marking greatest progress and utility in its application to the grain and milling interests, invented within the last ten years."

Millers' International Exhibition, Cincinnati, Ohio, 1880.

THE GEO. T. SMITH MIDDLINGS PURIFIER

Was awarded THE HIGHEST PRIZE ever offered for the competition of milling machinery—THE LOCKWOOD MEDAL—at the great Exposition. Competition and comparison with every other known Purifier only established it more firmly in the esteem and approval of millers and mill-owners.

It was UNANIMOUSLY awarded the FIRST PREMIUM in its class by a jury of five of the ablest, most successful and experienced mill-owners in the United States, men who represented the milling of every variety of wheat, and the use of all the latest and most approved methods of new process and gradual reduction milling.

Our sales during the Exposition aggregated OVER ONE HUNDRED MACHINES, for every part of the country and for work on all kinds of stock.

We invite particular attention to our SPECIAL machines, combining in one all the features of both air and sieve Purifiers, perfectly adapted to handle and purify the breaks of roller mills.

Write for descriptive circular and price list to the

GEO. T. SMITH MIDDLINGS PURIFIER CO., Jackson, Mich.

[Mention this paper when you write us.]

FLOUR MILL FOR SALE.

Any one desiring to purchase a 4-run water power mill in a good wheat-growing country, four miles north of Dayton, Ohio, on the Stillwater River, CHEAP and on easy terms, will address MICHAEL SCHAEFER, 16 Market street, Dayton, Ohio.

German and Austrian

FLOUR MILL DIRECTORY.

Compiled from official sources and giving in every instance the number of runs of stone and kind of power used, just published at Leipzig, Germany. This work is of great value to all who desire to build up trade with Germany or Austria. Price, $9 per copy. Sent by mail on receipt of price. Address

UNITED STATES MILLER,

MILWAUKEE, WIS.

[Mention this paper when you write us.]

HENRY SMITH, JR. GEO. G. SMITH. F. A. SMITH

SMITH BROTHERS,

Practical Millwrights.

Plans, Specifications and Estimates made for all kinds of

MILLWORK, MACHINERY, Etc., Etc.

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishers.

No. 454 Canal Street,

MILWAUKEE WIS.

[Mention this paper when you write us.]

SITUATION WANTED.

By April 1st, or sooner. A prominent miller; one who has been milling since 1856; had full charge of a large water mill 14 years, and head miller in steam mill 12 years. Is one of the finest burr dressers in the country. Reason for changing situation, his employer is trying to sell out, and he don't know what day he may be out of work. Please address LAWYER DONALDSON, Prosecuting Attorney, Allegan, Mich.

SAWING MADE EASY.

A boy 16 years old can saw off a 3-foot log in two minutes.

Our new portable **Monarch Lightning Sawing Machine** rivals all others. **$50 cash** will be given to two men who can saw as *fast* and *easy* in the old way, as one boy 16 years old can with this machine. Warranted. Circulars sent Free. Agents wanted.

MONARCH LIGHTNING SAW CO.,
163 Randolph St., Chicago, Ill.

[Mention this paper when you write us.]

Over 4000 now in use. Guaranteed the best Tool in the market for smoothing the face and furrows, removing glaze, and restoring the burrs to their sharp, natural grit. It is far superior to **Emery** or **Corundum.** Used with or without **water.** Too large to send by mail. **Price, $5.50.** Will send our Tool on **trial** against any other in the market, Miller's to **pay** for the best after a **trial. Sold by Mill Furnishers throughout the world.**

☞ See that it has "Teter & Allen, Pat. Black Diamond Tool" on the plate.

TETER & ALLEN,
404 Commerce St., Philadelphia, Pa.

[Mention this paper when you write us.]